

# **Theoretical foundations for the assessment of bilingualism in the early childhood**

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Licenciatura en Bilingüismo con Énfasis en inglés

2021

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Trabajo de grado como requisito para optar por el título de licenciado en bilingüismo con  
énfasis en inglés

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## **Acknowledgments**

Foremost, we would like to express our sincere gratitude to our advisor Prof. Daniel Murcia Quintero, director of the B.A. in Bilingualism and English teaching at Universidad Tecnológica de Pereira, for his tutoring and support during this whole research process. His Enthusiasm, knowledge and attention have been of great support for the completion of this research.

Besides our advisor, we would like to offer our most sincere appreciation to our Prof. Angela Patricia Velasquez Hoyos for her commitment and for providing support and guidance when we needed it, especially at the beginning of this project. The learning opportunities provided by her were really useful and valuable.

Last but not least, we also want to extend our appreciation and gratitude to all our relatives, friends, and others who in one way or another shared their support either morally or physically. We truly thank them.

### **Abstract**

Knowing how to assess bilingualism in early childhood is an important concern that has been scarcely approached in Colombia even though there are some programs intended to provide bilingual education in the early years. Hence, the purpose of this monograph is to gather information that can support the assessment of bilingualism in early infancy, especially in *Centros de Desarrollo Infantil* in Pereira. Using bibliometric analysis, the current study gathers information regarding the assessment practices in early childhood bilingual education in different countries. By doing so, it has been found that the assessment of vocabulary knowledge plays an important role in letting researchers map children's knowledge of a language. Consequently, most of the assessment batteries found in different studies included the assessment of vocabulary either expressively or receptively. Additionally, some tendencies when assessing literacy skills and narrative abilities are explored. The outcomes of the current study may be of help to understand what have been done in other countries and which assessment instruments have been used in the subject of this paper. Further studies could start piloting and testing the applicability of those assessment instruments and practices to determine if any adaptation or change may be needed when assessing bilingualism in early childhood in *Centros de Desarrollo Infantil*.

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### Justification

The concept of early childhood assessment has received more attention from the bilingualism and educational fields in the last decades, and there is a plausible growth of knowledge in this field. Nonetheless, most of the literature proposes assessment practices or instruments that have been traditionally tested with children in immersion contexts. Conversely, little has been said about the adaptability of those tools to other settings where children before 5 years old who mostly belong to vulnerable communities learn a language as a foreign one. This is especially true in the case of the assessment of English as a foreign language in the early years as happens in the *Centros de Desarrollo Infantil* in Pereira, which are settings created to provide the early infancy with integral attention. There, some practitioners from *Universidad Tecnológica de Pereira, UTP* teach and assess English learning thanks to a project called *Círculo Virtuoso*. However, those practitioners face a drawback related to the lack of systematic and quality instruments to assess their learners who are Spanish speakers from 6 months to 5 years old and who mostly come from vulnerable communities.

Admittedly, the assessment of bilingualism in early childhood in Colombia is problematic for many reasons. First, there is not a consensus among the government about what initial education means. Some government institutions like the Presidency and the Pereira's government understand this concept as the integral education given to children from zero to six years old (before schooling). This is evident in the agreement *N° 42 of 2015* in Pereira and the laws *1804 of 2016 and 1450 of 2011*. Conversely, Risaralda's government interprets this as the education given to children from zero grade of schooling as stated in *Ordenanza 013 de 2019*, which does not include infants younger than five years old. Thus, without having a clear view of what initial education means, how is it possible to have a proper assessment of bilingualism in early infancy? Besides the previously mentioned



misunderstandings, in Colombia, there are standards from the Ministry of Education (MEN) such as the English Suggested Curriculum, which addresses the principles to assess bilingual education, the learning outcomes, and even some samples for quizzes (Ministry of Education, MEN, 2016). Nonetheless, that information for English learning and assessment is provided again for learners since the first year of schooling without considering children who receive initial education in this language as it is the case for children from the *Centros de Desarrollo Infantil*. There are indeed some documents that track the development of children in early infancy as the “*Escala de valoración cualitativa del desarrollo Infantil*” (Instituto Colombiano de Bienestar Familiar & Pontificia Universidad Javeriana, 2015), but this document does not approach the assessment of bilingualism in Early Childhood Education (ECE).

Having clear the profound gap in Colombia regarding the assessment of bilingualism in early childhood, it is imperative to ask the reason for such lack of research, policies, and implementation in this field. Based on the lack of literature, the government position, and what is stated in the official documents, it is evident the common belief that there is no need to measure children’s bilingualism, at least not in the early infancy. In addition, the country’s government seems to assume that as children from primary school start at an age of 6 or 7 years, there is not any process of bilingual education before that age. Nonetheless, the situation is particularly different in the *Centros de Desarrollo Infantil* where there is an ongoing process of bilingual education at an early age, in this case before schooling. Hence, there is a clear necessity of knowing if the teaching and learning practices are being properly implemented. That is why teachers need to be provided with the proper tools to measure children’s learning, guide their practices, and guarantee that the bilingual education given to children is appropriate and effective.

Therefore, given the lack of agreement among the government institutions regarding initial education as well as standards to assess bilingualism in early infancy, it is imperative to support teachers in this complex but important enterprise. Thus, the purpose of this monograph is to systematically gather and analyze theoretical data that can serve as foundations to create an instrument of assessment for Early Childhood Education (ECE). What is more, the current work aims to contribute to a better understanding of proven tools to assess bilingual education in the early years and therefore, contribute to more reliable evaluations of bilingual infants' performances in the country.

## Objectives

### General objective

- To compile and present theoretical support for the assessment of bilingual education in early childhood in *Centros de Desarrollo Infantil* in Pereira.

### Specific objectives

- To explore the policies and standards in Colombia regarding Bilingual education and assessment in early childhood.
- To systematically review the authors' work in the field of early childhood education and assessment.
- To explore tools and formats implemented in Colombia or any other country that can be used to assess bilingualism in the early infancy in the contexts of *Centros de Desarrollo Infantil*.

## **Theoretical Framework**

### **Conceptual Framework**

#### ***Education in the Early Childhood***

Education in the first years of life has become an important tool to foster children's development, and therefore, this article is firstly concerned with this aspect. In this regard, Snaider (2018) asserts that Early Childhood Education (ECE) impacts different aspects of the infants' development and that it covers from birth until 8 years old. She adds that ECE involves not only education but also different services such as feeding or health programs. Thus, it is possible to identify that ECE is an ongoing and complex process in which the welfare of children in general aspects is always the aim. Furthermore, Becker (2007) states that Early infancy education goes from 0 to 6 years old and is the initial phase of education and an essential right in different parts of the world. Hence, it is evident that the range of age varies from author to author, but it is still clear that ECE takes place within the first stage of the children's development, and the well-being of infants is a core foundation of any ECE program in different countries.

#### ***Emergent literacy***

The acquaintance infants have regarding writing and reading, which is the initial step to acquire reading and writing skills has been defined by some authors as emergent literacy (Lonigan, 2006; Snow, 1998, as cited in Wilson & Lonigan, 2009, p.116). Moreover, for the National Literacy panel (2008, as cited in Wackerle-Hollman, et al., 2019), early literacy skills are deemed to be predictors of later reading success. Consequently, it is imperative to talk about the importance of knowing how to measure these skills at an early age since that may predict children's future success when it comes to literacy or academic tasks and help educative agents make decisions to support infants at risk of literacy delays.

## ***Bilingualism***

In the last decades, the concept of Bilingualism has become more complex since it is very common to find speakers of different languages interacting in different settings. According to Villagra-Batoux (2003), Bilingualism is a concept that is not completely structured and that suffers constant modifications based on the conditions of society. The definition presented by Villagra-Batoux is assertive as this term cannot be considered in a static form but as something dynamic that changes from speaker to speaker and from community to community depending on the populations' situations. Besides this, the Colombian Ministry of Education asserts that Bilingualism is the ability of a person to transmit information in more than one code and comprehend a culture with different levels of mastering those codes (MEN, 2016). This government institution sees bilingualism from the individuals' perspective rather than a collective practice. Nonetheless, this term should not only be interpreted as an individual possession but also as a group practice in which different members construct different ways of communicating in more than one language. When talking about bilingualism in a society, it is essential to differentiate societies in which two languages cohabit, those in which the government is trying to introduce a foreign language, or the ones in which there is a lingua franca, just to cite some examples.

## ***Bilingual Education***

With the boom of bilingualism mentioned above and the demands of a globalized world, the teaching and learning of more than one language have become more popular and have forced government and academic institutions to dabble into this practice. Concerning this, García (2009) mentions that bilingual education means the inclusion of two languages when teaching and assessing students. The author continues to state that the Bilingual education programs may vary depending on different factors such as the type of population to be taught and the contexts, among others. García exposes then an assertive view of what

bilingual education is and how different bilingual education programs differ as a bilingual education program in a monolingual context is not the same as one in a bilingual setting, just to cite an example. In addition, the Ministry of Education and Culture of Paraguay (1998, as cited in Elías, 2014) states that bilingual education implies using two different languages to teach not only the formal aspects of them but also to teach languages as means of teaching other aspects or skills such as the ability to read or write.

### **Bilingual Education in Colombia**

When talking about bilingual education, it is important to consider the Colombian context as well. In this regard, De Mejía (1998) remarks that in terms of bilingual education in Colombia, it is important to make a distinction between ethno-education programs and the educative programs for prestigious languages. The former focuses on the learning of Spanish and an indigenous language, and the latter deals with the learning of a foreign and prestigious tongue with high proficiency aside from the students' mother language. It is worth mentioning at this point that Bilingual education should not only imply the learning of English and Spanish but also the education of Spanish and Colombian indigenous languages. In our perspective, both educative programs should be promoted to maintain the indigenous heritage and, on the other hand, open the door for globalization through the learning of English. From another perspective, Guerrero (2008) infers that being bilingual in Colombia is a synonym for learning just English. This is something that can be seen in the different bilingual education programs created around the country that promote the learning of English in most cases.

### **Bilingual Education Policies in the Early Childhood in Colombia**

Bilingual education in Colombia has been contemplated in most of the standards and language policies since primary education with a superficial reflection on the development of

bilingualism in early infancy in few official documents. In this regard, the *Alcaldía Municipal de Pereira* (2015) released an agreement called “*Acuerdo No. 42 de 2015*”. This agreement states the importance of bilingual education of children before schooling in *Centros de Desarrollo Infantil*, where 0-5 years old children from low socioeconomic backgrounds have integral attention (education, health services, nutrition, etc.). Some pedagogical strategies that involve the use of English are used with these infants through the *Círculo Virtuoso* project in which practitioners from *Universidad Tecnológica de Pereira* go and accompany them. Hence, it could be said that the release of an agreement that regulates this practice is a plausible step towards the bilingual education of the vulnerable population in the city. Nonetheless, there is still a need to regulate and guarantee the quality of this education as it is usually assigned to the institutions’ parameters or the practitioners themselves.

On the other hand, the *Gobernación de Risaralda* (2019) passed a norm called *Ordenanza No. 13 of 2019* in which infants are expected to start a bilingual process (in English) from zero grade of schooling. This ordinance was passed four years after the municipal Agreement No. 42, 2015 of Pereira, and it seems to be a setback since it does not consider the bilingual education that children before schooling (before zero grade) were already receiving in cities like Pereira. The Ordinance number 13, which is a more recent one, makes evident the lack of knowledge of some government institutions about the education in English as a second language which is taking place in the national territory. It seems that Risaralda’s government was not aware of the bilingual process that children in Pereira had in the *Centros de Desarrollo Infantil*. Consequently, the misconception of the government agents about “early childhood education” just from the schooling age is harmful to perform a quality and oriented bilingual process with children from zero to five years old.

### *Classroom assessment*

As previously mentioned, having a clear scope of the meaning of Bilingual Education in early childhood serves to a quality bilingual process. Similarly, knowing how to assess the achievements in a second language sets the path to have reliable results. One could say that a 4-year-old infant knows how to communicate in a second language because she knows a song in English, but that, per se, might not be a reliable asseveration. Hence, apprehending the concept of assessment and its different dimensions is essential to have a meaningful bilingual process. In this regard, Lopez and Bernal (2009) advocate the view that apart from being an inseparable part of education, classroom assessment is a resource to make choices regarding the learning process. Therefore, classroom assessment is an instrument that allows educators to map the actual situation of children and create plans for the future. In fact, it becomes an inseparable tool for a significant learning process, in this case, second language learning since only by means of proper assessment criteria, learners' bilingual results can be judged as reliable.

Additionally, the Colombian Ministry of Education (2020) conceives classroom assessment as an element that allows observing learners' progress and outcomes based on proves that lead to a meaningful and useful education for every social agent. Ergo, the assessment practices are presented as instruments to guarantee meaningful and purposeful education for learners around the country. Nonetheless, the regulation of those assessment practices in Colombia does not include early infancy as those regulations are designed just for elementary and secondary school and the University. All in all, in Colombia there is a profound gap not only in early childhood bilingual education but also in the assessment criteria for this population. Thereby, it is imperative to start thinking about the proper methods to assess bilingual performance in children before schooling. Even though there is



not a clear path to assess bilingualism in early childhood in Colombia, observation formats appear as appropriate alternatives in this effort.

### ***Types of assessment appropriate for early childhood***

**Observation.** Formative assessment complies with different formats, one of which refers to observation. Considering that early infancy possesses particular characteristics, the way of assessing their knowledge in a second language should differ from those types of assessments usually applied to older learners. Formative types of assessment encompass different ways of gathering information on learners' performances, and in the case of early infancy, the observation of the pedagogical experiences is one of them. Accordingly, the Ministry of Education in Colombia asserts that Observation is the assessment practice that allows thinking on what happened, what did not happen, and the feelings that arose when performing a pedagogical practice. Besides, it allows thinking of the actions to implement in the future (MEN, 2014e). Thus, this assessment type ignites the spark to assess bilingual outcomes on children who are non-schooled yet most of the time or do not even know how to read or write.

Moreover, the Ministry of Health in Argentina (MSAL for its abbreviation in Spanish) implies that observation gives information about learners' actual situations without adding pressure. Besides, it is the first step to assimilate, appreciate and impact children's growing up (MSAL, 2017). Here, the conception of an observation format allows a complete comprehension of learners' situations and serves to know and intervene in their educational process. In fact, the document *Bases Curriculares para la Educación Inicial y Preescolar* which is a guide from the Colombian Ministry of Education considers observation formats as fundamental methods to track children's responses to some pedagogical experiences (MEN, 2017).

### ***Principles of language assessment***

The principles to assess languages are a sort of guide for the personnel in charge of language assessment (ILTA, 2000, as cited in Giraldo, 2018). Large-scales tests carry a great impact on people, and that is why the assessment of language should be fair (Shohamy, 2021, as cited in Giraldo, 2018). Thus, the promotion and consideration of these principles are of special significance when assessing learners and more especially, the young ones. Two of those assessment principles are practicality and reliability.

**Practicality.** This principle refers to issues related to the administration and scoring of a measurement tool (Brown, 2004). According to Bachman & Palmer (2010); Coombe et al., (2007), as cited in Giraldo, (2017), a practical assessment instrument is fruitful and not over expensive. They add that for a test to be practical, some aspects such as space, time, economic resources, and the test creation should be taken into account (Brown & Abeywickrama, 2010, as cited in Giraldo, 2017).

**Reliability.** This term refers to the characteristic of a test, among others, of being non-ambiguous and with understandable instructions regarding the inferences that can be made about the test scores (Brown, 2004). Besides this, a test is reliable if the examinees obtain similar results if being administered the same test at different moments (Brown, 2004). What is more, a reliable assessment instrument provides precise data about the examinee's language ability (Fulcher & Davidson, 2007, as cited in Giraldo, 2017). Furthermore, there are some kinds of reliability, and internal consistency is understood as one of them.

## Methodology

The current work is a descriptive study by means of qualitative documentary analysis which aims at supporting the assessment of bilingual education in the early infancy in Pereira town. Documentary analysis is “a systematic procedure for reviewing or evaluating documents [...] which requires that data is examined and interpreted in order to elicit meaning, gain understanding, and develop empirical knowledge” (Corbin & Strauss, 2008, as cited in Bowen, 2009, p. 7). This typology was selected due to the need for gathering, filtering, and analyzing the amounts of disconnected information regarding the assessment of bilingualism in early childhood that is available in the various databases.

## Context

In Pereira, there is a program to provide integral attention to the early infancy and it is executed through the *Centros de Desarrollo Infantil* called *San José, Otún, Caperucita, Utepitos, Tokio, Puerto Caldas*, among others. More than 1240 children from vulnerable communities between 6 months and 5 years old attend those places and have, among other services, bilingual education. Through a collaboration program between *Universidad Tecnológica de Pereira, UTP* and those *Centros de Desarrollo infantil*, practitioners from the *UTP* teach and assess English there.

## Technique

As stated by Diodato (2012), the papers published regarding a field can be general, and therefore need to be narrowed and gathered according to their items. Therefore, this study is executed through a bibliometric analysis in which the articles related to the assessment of bilingualism in the early infancy are filtered and reviewed in order to construct the foundations for the assessment of bilingual education in *Centros de Desarrollo Infantil*. Even though there are different types of bibliometric analysis, the current one is conducted

employing Citation analysis of impact, which is widely used to unveil the scientific contributions in a discipline (Bichteler & Eaton, 1980, as cited in Zhang, 2020, p. 2). In order to develop the bibliometric analysis, some steps were designed and are explained as follows:

### ***Data bases and journals selection***

Some databases were selected according to their appropriateness for the aim of the current study and the number of open access articles that can be retrieved from them. In addition, the journals subscribed to those databases were analyzed in order to determine whether they would be used or not to conduct this systematic review. The search was performed directly in the journals rather than the databases since otherwise, it would give a huge amount of articles retrieved from different journals even the ones which were not appropriate for the current documentary analysis. For instance, if the cluster “assessment of bilingual in early childhood” is searched directly in the database SAGE, the results retrieved would be 9.978, and some of them would come from sources such as *The Journal of Learning Disabilities*, which is a journal specialized in learning impairments. Thus, these kind of results are not the core interest of this study, and the search would be inefficient in terms of time and amount of information. Conversely, by entering the keywords in each article of the ones selected, the results gotten were 1.883 in this database. On the other hand, as the term “assessment of bilingual education in early childhood” might entail a broad range of practices and specific assessment instruments for each language skill or dimension, all the article titles were read by the researchers in order to avoid discharging potentially beneficial studies.

### ***Keywords to conduct the search***

In order to obtain the best results from the databases, the following keywords were searched one by one in each journal.

The keywords considered to conduct the search in English were:

- assessment of bilingual in early childhood (The keyword “bilingual” refers to “bilingualism” or “bilingual education”, and was search in this way to obtain results whose title contain either “bilingualism” or “bilingual education”)
- assessment of bilingual in early infancy
- assessment of bilingual in the early years
- instrument to assess bilingual in early childhood

The keywords considered to search Spanish were:

- evaluación o bilingüismo o primera infancia
- evaluación o bilingüismo o primeros años
- evaluación o bilingüismo o edad temprana
- evaluación o lengua extranjera o primera infancia
- evaluación o lengua extranjera o primeros años
- evaluación o lengua extranjera o edad temprana

### ***Pilot search***

After establishing the keywords, a pilot search was performed to test the effectiveness of the keywords and the inclusion criteria. Three keyword clusters were piloted and 57 articles could be downloaded after applying the Inclusion criteria checklist. The keywords used for this piloting were:

- assessment of bilingual in early childhood
- assessment of bilingual in early infancy

- assessment of bilingual in the early years

### ***Inclusion criteria***

The inclusion criteria for the articles were established in order to download studies that could contribute to the aim of this systematic review. To be included, an article must fulfill all the following criteria:

**Table 1**

*Inclusion criteria to be applied to all the documents*

| Indicator  | Yes | No |
|--|-----|----|
| The main topic of the study is related to the assessment of bilingual education in early childhood and not to other educational, political, or philosophical concern |     |    |
| Firsthand publication  |     |    |
| Year of publication (not previous than 1980)   |     |    |
| Full-length article  |     |    |
| Written in English or Spanish  |     |    |
| Downloadable   |     |    |
| Conducted with children from 0 to 5 years old  |     |    |
| Conducted with children without any cognitive, mental, or linguistic difficulties.   |     |    |

Source: Own.

### ***Searching phase***

Each cluster was searched in each of the journals previously selected. Then, the articles whose title fitted with this review aims were opened and their abstracts were read by the researchers. Then, the inclusion criteria checklist was applied to download the most appropriate ones. A total of 16.224 articles were retrieved by entering the clusters in all the journals (in English and Spanish). Then, a total of 146 were downloaded for a deeper review of them, and finally, just 72 articles were reviewed in the current study. These numbers only consider the articles reviewed to find tendencies of instruments used to assess early childhood bilingual education. They do not consider other articles or works included in the bibliography of the current study to provide theoretical support to concepts, theories, or laws of interest. Moreover, some journals, especially the ones in Spanish retrieved almost the same articles by searching with different keyword clusters, and there were just a few slight differences in terms of the numbers of articles retrieved or the origin of them. Thus, the numbers of articles retrieved seem to be quite high, but many of them were actually retrieved when searching different keyword clusters, which means they were repeated. Nonetheless, that was an inconvenience the authors of this review decided to face in order to guarantee the most potentially useful articles would be retrieved. For more information regarding the relationship between keywords searched, results obtained, and articles downloaded, go to the appendices.

### ***Articles storage***

The articles that fulfilled all the inclusion criteria were organized and grouped in folders according to their relevance as “High relevance”, and “Partial relevance”. An article was grouped in the “High relevance” folder if apart from fulfilling the inclusion criteria, it was conducted in similar circumstances to the ones presented in *Centros de Desarrollo Infantil* in Pereira town. For instance, if they assessed children from disadvantaged socio-economical backgrounds who were Spanish speakers learning English, they were sorted in

this category. Conversely, if a research paper fulfilled some of the criteria, it would be classified into the “Partial relevance” folder.

### ***Citation analysis of impact***

The impact of each document was measured by the times that an article had been cited through the Scopus database. The information obtained was compared to determine which articles were more impactful in the field.

### ***Quality criteria***

The methodology and results of each article were analyzed, and quality criteria were applied. For the current review of literature, the articles should present objective results based on clear and precise evidence. In addition, they should propose or use some assessment instruments that could be retrieved and adapted to contribute to the assessment practices in early childhood in the region. Finally, the articles should be impactful in the field so as to prove their recognition and appropriateness. It is imperative to highlight that these quality criteria was performed in order to have a practical process in which the articles with the highest quality were reviewed first. Nonetheless, due to the scarcity of information in the field, the articles which did not have the highest quality could not be discharged immediately as they still could have valuable information. The quality criteria are registered in the following rubric:

**Table 2**

*Quality criteria to apply to the remaining articles*

| <b>Indicator</b>   | <b>Score</b> |
|--|--------------|
| Does the study propose or use assessment instruments in ECE that fit the aim of this | 0-4          |



---

systematic review? (Based on its

methodology)

Did the study use assessment instruments

that have been proved to have high

0-2

reliability as an indicator of their quality?

Is the article impactful in the field of

assessment of bilingual education in early

0-4

infancy? (Based on the citation analysis of

impact)

---

**Source:** Own.

## **Chapter 1. Policies and standards in Colombia regarding bilingual education and assessment in early childhood**

The integral attention to early childhood has received special attention within the last decades in Colombia. The change of perspectives regarding early infancy has been such that children were declared subjects of law with all the implications this declaration caused such as the promotion of the integral attention to children from 0-6 years old in the national territory. This aspect has gained special importance since the country is convinced that the bases of human development are set in the early infancy (*Comisión Intersectorial de Primera Infancia*, 2012).

Consequently, different laws and agreements have been passed in order to guarantee integral attention to children. One of the core laws which placed the basis for the protection of children's rights was the law 1098 of 2006, which is called *Código de infancia y adolescencia (Ley 1098 de 2006)*. This is a law that aims at providing complete and adequate development of children and adolescents in Colombia as well as the means to restore their rights when they are violated. In article number 41, item 17, this law attempts to, among other things, guarantee free education for everyone since birth through educational institutions near their homes or any Information and Communication Technology form (ICT). In addition, this law aims to ensure the means that guarantee the permanence of children and adolescents in the educational system as well as the fulfillment of their educative process. Furthermore, it states the need for guaranteeing a learning environment respectful of human rights, that avoids any form of discrimination, and that addresses the specific educational needs of learners (*Ley 1098 de 2006*).

Five years later, the law N° 1450 of 2011 (*Plan Nacional de Desarrollo; Ley 1450 de 2011*) which included some guidelines concerning the early infancy was passed. Some of its guidelines were set to promote children's rights and train parents and educational agents for a

better comprehension of infants and ensure the budget to assist those infants in the national territory. Consequently, a different document was developed to address the requirements of the “Plan Nacional de Desarrollo” in a more specific way. This product was named *Atención integral: Prosperidad para la primera infancia, De Cero a Siempre* (Comisión intersectorial de Primera Infancia, 2012). This document mentions some strategies of the government to respond to the obligation of providing integral attention to the infancy stated in the laws 1098 of 2006 and 1450 de 2011 (*Ley 1098 de 2006 & Ley 1450 de 2012*, as cited in *Comisión intersectorial de Primera Infancia, 2012*). On the other hand, it has five main objectives: 1. To ensure that children’s rights are fulfilled. 2. To set a long-term public law that could be sustainable technically and economically and that supported the efforts to achieve this commitment in the national territories. 3. To ensure the quality and properness of the integral attention to early childhood. 4. To raise consciousness among the Colombian society in order to transform the beliefs towards children and their relationships with them. 5. To strengthen the family as a fundamental institution in the early development of children. As far as this study is concerned, it pays special attention to the second principle that deals with education in early childhood.

Henceforth, in order to cope with the national government’s requirements regarding the integral attention to the early infancy, the project called *Círculo virtuoso* was piloted in Pereira in 2012. This project had the cooperation of *Universidad Tecnológica de Pereira*, the town’s government, and *Comfamiliar Risaralda*, a private institution that seeks to improve people’s well-being. This program aims to improve the quality of education in early childhood, emphasizing English language learning, scientific and creative thinking, psychological assistance, and training for families, among others. Then, in order to regulate the attention to early childhood and guarantee the integrality of this endeavor as well as to support the *Circulo Virtuoso* project, the local government of Pereira established The

Agreement n° 42 of 2015 (*Alcaldía de Pereira, Acuerdo 42 de 2015*). In the second article of this agreement, some dispositions were stated to create conditions to permit a successful transition between the initial (before schooling) and the primary education (from zero grade of schooling) for children. Besides, in its third article, some dispositions were stated to respond to the early childhood educational needs, and one of them was the learning of English as a second language since early infancy. In addition, another commitment of this agreement was to train the educative agents to respond to the challenges they might face in the education of early childhood.

**Table 3**

*Agreement No 42 of 2015 (Pereira). Relevant articles regarding Early childhood education*

| Article                    | Description   |
|----------------------------|---|
| Second article             | To ensure a successful transition between initial education and primary education.    |
| Third article              | To respond to early childhood educational needs, including English language learning. |
| Fourth Article, ninth item | To train educative agents of the initial education.                                   |

**Source:** Own.

Note. This agreement has many other articles concerning early childhood. The most relevant in our field are the ones that have been selected above.

Subsequently, in 2016, the Colombian Congress passed a law called *Ley 1804 de 2016* in which the conceptual basis, techniques, and management practices were established to guarantee integral attention to early childhood which included children from zero to six years old and pregnant women. In its fifth article, this law states that initial education is a right for every child in Colombia, and it is an intentional, permanent, and systematized process through which the infants develop their skills in literature, games, arts, and exploration of the surroundings. In addition, it states that the regulation of the initial education is going to be in charge of the Ministry of Education (*MEN*) and that it is developed through the efforts and intervention of different agencies of the government. Since then, different agreements and ordinances were passed in the departments and municipalities to respond to the government dispositions regarding early childhood.

As a matter of fact, on April 9th, 2019, the “*Mesa departamental de bilingüismo*” was established to know and share the challenges and projects which were being developed in terms of bilingualism in Risaralda. As a consequence, two Ordinances were published on September 10th, 2019. The Ordinance 12 adopts a regional program called *Aprender a desaprender 2019-2031*, in which among other things, early childhood is considered as a priority as well as the conception of a multilingual and competitive region (*Gobernación de Risaralda, Ordenanza 12 de 2019*). On the other hand, the Ordinance 13 adopts a public law to enhance bilingualism in Risaralda and receives the name of *Risaralda Bilingüe, competitiva y social 2019-2032*. This ordinance presented some inconsistencies as in article number 8, it stated the commitment of having a bilingual initial education (*Gobernación de Risaralda, Ordenanza 13 de 2019*). However, it later stated that the learning of English was going to be promoted since zero grade of schooling without considering the unschooled children who were already learning it through some projects like the *Circulo Virtuoso* one in

Pereira. Hence, this made noticeable the misconception of Risaralda's government regarding the age range that "initial education" implied.

In a nutshell, in Colombia, there are no systematic assessment instruments established to assess bilingual education in the first years of life. Besides, it is noticeable the confusion among some educative agents about what "initial education" refers to and the implications this conception has on the teaching and learning practices. This situation cohabits with an increasing need to have proper assessment practices and instruments to measure bilingual development or knowledge gaps in early infancy. Henceforth, something needs to be done to support teachers when it comes to assessing bilingual education at an early age to guarantee appropriate results and fair education for everybody including the youngest learners.

## **Chapter 2. Assessment of vocabulary knowledge**

Assessing vocabulary in young language learners is a complex endeavor as those learners are most of the time in the process of becoming literate and are still acquiring their first language. Nonetheless, it seems that vocabulary knowledge plays an important role when learning a language and according to some authors, academic success is tightly related to children's knowledge of words (Dickinson & Tabors, 2001; Snow et al., 1998, as cited in Vagh et al., 2009). Correspondingly, this aspect was the trendiest among the articles analyzed since 65,8% of them measured vocabulary. In fact, many studies in which the focus was a different one such as reading or narrative abilities included this aspect as it is deemed to be very important to determine children's domain of a language.

### **The instruments used to assess vocabulary knowledge in children and toddlers**

As a result of the systematic review conducted in the current study, the instruments used to assess vocabulary in children in the literature analyzed were collected and listed in table 4, and the frequency of usage is related to each of them. This list shows which tools are somehow preferred by the researchers when assessing vocabulary in young children. A possible reason why some tools are more used than others is that researchers incline to choose the ones which have been normed somewhere and enjoy high reliability, recognition, and frequent use. Accordingly, some of the trendiest tools among the articles found were the Peabody Picture Vocabulary Test (PPVT; 1<sup>st</sup>, 3<sup>rd</sup>, 4<sup>th</sup> edition, and non-English versions), the MacArthur Bates Communicative Development Inventories (CDI), and the Expressive One-Word Picture Vocabulary Test (EOWPVT).

**Table 4***Ranking of tools that measure vocabulary knowledge*

| <b>Assessment instrument</b>        | <b>Version</b>   | <b>Frequency of usage among the studies found</b> |
|-------------------------------------|--|---|
| The Peabody Picture Vocabulary Test | <p>The Peabody Picture Vocabulary Test (PPVT; Dunn, 1965, as cited in Schwartz et al., 2012)</p> <p>The Peabody Picture Vocabulary Test- Revised (PPVT-R; Dunn &amp; Dunn, 1981, as cited in Lipsky, 2013; Richards-Tutor et al., 2013)</p> <p>Test de Vocabulario <sup>1</sup>en imágenes Peabody <b>1</b></p> <p>Canadian French adaptation Épreuve de vocabulaire en images Peabody (EVIP, Dunn et al., 1993, as cited in Thordardottir, 2011)</p> <p>The Peabody Picture Vocabulary Test: <b>2</b></p> <p>Peabody Picture Vocabulary Test-IV (PPVT-IV; Dunn &amp; Dunn, 2007, as cited in Han et al., 2014; Pendergast et al., 2015; Raikes et al., 2019; Reilly</p> | 28,4%   |

<sup>1</sup>(TVIP; Dunn et al., 1986, as cited in Burchinal et al., 2012; Greenfader & Miller, 2014; Hammer et al., 2008; Hammer et al., 2020; Kelley, et al., 2015; Maier et al., 2016, Pendergast et al., 2015; Raikes et al., 2019; Richards-Tutor et al., 2012)

<sup>2</sup> (PPVT III; Dunn & Dunn, 1997 as cited in Barnett et al., 2008; Burchinal et al., 2012; Castilla et al., 2009; Dixon, 2010; Greenfader & Miller, 2014; Grøver , 2007; Grøver et al., 2018; Hammer et al., 2008; Hammer et al., 2020; Kelley, et al., 2015; Maier et al., 2016; Sparks & Reese, 2013; Sylvester & Kragler, 2012; Thordardottir, 2011; Vagh et al., 2009)



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|---|--|-------|
|   | et al., 2020; White, 2021; Abel et al., 2015; Xu, 2015)  |       |
| MacArthur Bates Communicative Development | MacArthur Bates Communicative Development Inventory (CDI; Fenson et al., 1993, as cited in Cote & Bornstein, 2014; Gatt et al., 2014; Gatt et al., 2016; Vagh et al., 2009)<br><br>European French adaptation MacArthur–Bates Communicative Development Inventory (F-CDI; Kern, 1999, as cited in De Houwer et al., 2006)<br><br>Inventario de habilidades Comunicativas (INV-II; Jackson-Maldonado et al., 1993, 2003, as cited in Conboy & Thal, 2006; Hoff et al., 2014; Place & Hoff, 2011)<br><br>MacArthur–Bates Communicative Development Inventory (CDI; Fenson et al., 2007, as cited in Hoff et al., 2014)<br><br>MacArthur–Bates Communicative Development Inventory (Bockmann & Kiese-Himmel 2006, 2012, as cited in Rinker et al., 2017)<br><br>OZI (Kalashnikova, et al., 2016, as cited in Kalashnikova et al., 2019)<br><br>MacArthur–Bates Communicative Development Inventory (Acarlar et al. 2009, as cited in Rinker et al., 2017) | 12,3% |

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|---|--|------|
|   | MacArthur–Bates Communicative Development Inventory (Sachse et al., 2016, as cited in Rinker et al., 2017)   |      |
| Expressive One Word Picture Vocabulary Test | Expressive One Word Picture Vocabulary Test (EOWPVT; Brownell, 2000, 2001, as cited in Barnett et al., 2008; Hipfner-Boucher et al., 2015; Hoff et al., 2014; Manz et al., 2016; Reilly et al., 2020)  | 6,2% |
| Woodcock Language Proficiency Battery       | Woodcock Language Proficiency Battery (WLPB; Woodcock, 1991, as cited in Franco et al., 2019; Gámez & González, 2019; Hammer et al., 2020)<br>Woodcock Language Proficiency Battery-Revised (WLPB-R; Woodcock, 1995, as cited in Vagh et al., 2009)<br>Woodcock Language Proficiency Battery – Revised, Spanish Form (WLPB-RS; Woodcock & Munoz-Sandoval, 1995, as cited in Hammer et al., 2020)<br>Bateria III Woodcock-Munoz (Batería WM; Muñoz- Sandoval et al., 2005, as cited in Franco et al., 2019; Maier et al., 2016) | 6,2% |
| Expressive Vocabulary Test                  | Expressive Vocabulary Test (EVT, Williams, 1997, as cited in Nicolopoulou et al., 2015; Sénéchal et al., 2008;   | 6,2% |

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|--|---|------|
|  | Expressive Vocabulary Test (EVT; Academic Therapy Publications, 2000, as cited in Sylvester & Kragler, 2012)                                |      |
|  | Expressive Vocabulary Test- 2 (EVT-2; Williams, 2007, as cited in Abel et al., 2015; Gatt & Dodd, 2020)                                     |      |
| Test of Preschool Early Literacy             | Test of Preschool Early Literacy (TOPEL; Lonigan et al., 2007, as cited in Goodrich et al., 2019; Han et al., 2014; Xu, 2015)               | 3,7% |
| Clinical Evaluation of Language Fundamentals | Clinical Evaluation of Language Fundamentals – Preschool (CELF-P; Wiig et al., 2004, as cited in Spencer et al., 2017; Thordardottir, 2011) | 2,5% |
|  | Clinical Evaluation of Language Fundamentals – Preschool-2 (CELF-2P; Wiig et al., 2009, as cited in Méndez et al., 2019)                    |      |
|  | Clinical Evaluation of Language Fundamentals – Preschool-2 Spanish (CELF-2P; Wiig et al., 2009, as cited in Méndez et al., 2019)            |      |
| Preschool Language Scale-3                   | Preschool Language Scale-3 (Spanish version) (PLS-3; Zimmerman et al., 1992, as cited in Hammer et al., 2008)                               | 2,5% |
| Bilingual English-Spanish Assessment         | Bilingual English-Spanish Assessment (BESA; Peña et al., 2003, as cited in Castilla et al., 2009; Fabiano-Smith & BarlowBarlow, 2010)       | 2,5% |

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|---|--|------|
| Receptive One Word                                    | Preschool Language Scale–Spanish Version 4   | 1,2% |
| Picture Vocabulary<br>Test                            | (PLS-4; Zimmerman et al., 2002, as cited in Raikes<br>et al., 2019)  |      |
| Test of Early<br>Language-3                           | Test of Early Language-3 (TELD-3; Hresko et al.,<br>1999 as cited in Hammer et al., 2008)                              | 1,2% |
| The Receptive One-<br>Word Picture<br>Vocabulary Test | The Receptive One-Word Picture Vocabulary Test<br>(ROWPVT; Martin & Brownell, 2011 as cited in<br>Franco et al., 2019; | 1,2% |
| The British Picture<br>Vocabulary Scale               | The British Picture Vocabulary Scale (BPVS-2;<br>Dunn et al., 1997, as cited in Grøver et al., 2020)                   | 1,2% |
| Early Language<br>Inventory                           | Early Language Inventory (ELI; Bates et al., 1984,<br>as cited in Cote & Bornstein, 2014)                              | 1,2% |
| BILEX   | BILEX (Gampe et al., 2018)   | 1,2% |
| Boehm Test of Basic<br>Concepts                       | Boehm Test of Basic Concepts (Boehm–3<br>preschool; Boehm, 2001, as cited in Thordardottir,<br>2011)                   | 1,2% |
| The Woodcock-<br>Johnson Test of<br>Achievement       | The Woodcock-Johnson Test of Achievement (WJ<br>III; Woodcock et al., 2001, as cited in Maier et al.,<br>2016)         | 1,2% |
| Color Identification<br>Task                          | Color Identification (Mason & Stewart, 1989, as<br>cited in Greenfader & Miller, 2014)                                 | 1,2% |
| Lexical overlap task                                  | Lexical overlap task (Kalashnikova et al., 2019)   | 1,2% |
| Picture naming task                                   | Picture naming task (Gatt & Dodd, 2020)  | 1,2% |

|                                     |   |      |
|-------------------------------------|---|------|
| Early Language Inventory            | Early Language Inventory (ELI; Cote & Bornstein, 2014)  | 1,2% |
| Videotaping circle                  | Videotaping circle time (Grøver , 2007)   | 1,2% |
| Learning Express                    | Learning Express (LE; McDermott et al., 2009 as cited in Lipsky, 2013)                              | 1,2% |
| The Early Communication Indicator   | The Early Communication Indicator (ECI; Greenwood et al., 2010)                                     | 1,2% |
| Language Interaction Snapshot       | Language Interaction Snapshot (LISn; Sprachmanet al., 2009, as cited in Franco et al., 2019)        | 1,2% |
| Productive Vocabulary Task          | Productive Vocabulary (after Fenson et al. 1993, as cited in Schwartz et al., 2012)                 | 1,2% |
| Picture naming procedure            | Picture naming procedure (Gatt et al., 2014)  | 1,2% |
| Quick Interactive Language Screener | Quick Interactive Language Screener (QUILS; Golinkoff et al., 2017 as cited in Levine et al., 2020; | 1,2% |
| EFL pedagogic approach              | EFL pedagogic approach (Lucas et al., 2020)   | 1,2% |
| Targeted receptive vocabulary       | Targeted receptive vocabulary (VOC_REECEPTIVE; Grøver et al., 2020)                                 | 1,2% |
| Targeted expressive vocabulary      | Targeted expressive vocabulary (VOC_EXPRESSIVE; Grøver et al., 2020)                                | 1,2% |

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|---|--|------|
| Preschool Comprehensive Test of Phonological and Print Processing | Preschool Comprehensive Test of Phonological and Print Processing (P-CTOPPP; Lonigan et al., 2002, as cited in Farver et al., 2009)        | 1,2% |
| Print Processing  | Preschool Comprehensive Test of Phonological and Print Processing -Spanish version (Lonigan et al., 2002, as cited in Farver et al., 2009) |      |
| The Auditory Labeling Task  | The Auditory Labeling Task (McCarthy, et al., 2014)  | 1,2% |

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**Source:** own

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*Note.* This table contains the instruments used to assess vocabulary and their frequency among the articles found. The different versions of the tests found in the articles were listed. However, all of the versions of the same test were counted as one. In addition, some tests listed in this table are batteries that measure different aspects of bilingualism, and they were included here as the subtests used in the studies reviewed were the ones intended to assess vocabulary. All the subtests were not counted to avoid extensive lists, and rather, the general tests or batteries were mentioned. The most remarkable ones were the PPVT, the CDI, and the EOWPVT, which are explored below.

### ***The Peabody Picture Vocabulary Test PPVT***

The Peabody Picture Vocabulary Test PPVT is a test of receptive vocabulary in which the examiner mentions a word and shows four pictures to the examinee, who indicates orally or by pointing what is the image that corresponds to the word mentioned by the examiner (Maddux, 1999). Besides, it is a normed instrument in which examiners are assessed individually (Henninger, 2011). The PPVT is administered to individuals from 2 to 40 years old and based on research, it has proved to be appropriate to predict academic skills of

Spanish-speaking and English-speaking children (Howes et al., 2008, as cited in Burchinal et al., 2012).

**Benefits of using the PPVT.** According to Chow & McBride-Chang (2003); Dunn & Dunn (1997), as cited in Burchinal et al. (2012), the PPVT is consistent with other instruments that are related to academic achievement and assess development in terms of language or cognition. Additionally, the internal consistency of this measure ranges from .92 to .98 for its English version (Hammer et al., 2020). Likewise, it was co-normed with the Expressive Vocabulary Test (EVT) so that examiners can have a more complete understanding of children's vocabulary knowledge not only in terms of receptive skills but also the productive ones (Dunn & Dunn, 2007, as cited in Henninger, 2011).

**Limitations of the PPVT.** The PPVT is a monolingual test intended to measure children's receptive vocabulary in English that has a Spanish counterpart called, *Test de Vocabulario en Imágenes Peabody (TVIP)*. Nonetheless, the TVIP is “an imperfect translation of the PPVT” (Burchinal et al., 2012, p.193). It is not possible to translate one test into another language as there are several grammatical, syntactical, or cultural differences among languages even if they share the same familiar root. This makes evident the need of assessing bilingualism from a different perspective rather than with monolingual tests that keep assuming the languages as separate systems.

In this regard, there are some options that despite not enjoying such popularity as the PPVT can be studied as an alternative to measuring vocabulary. Such alternative could be some lexical overlap tasks such as the one implemented by Kalashnikova et al., (2019) in which 68 children from 26 to 34 months and different language backgrounds such as Cantonese and Mandarin, among others, participated. In this project, some puppets were used to measure children's capacity to name. The puppet made a first request in which he asked for an object using a word that was familiar to the child before the experiment. Then, the

puppet made a request naming an object using another language label that had been previously introduced in the experiment. This study makes it possible to identify some strategies to assess dual language learners without needing to separate the two languages and in a natural way for children that it is not necessarily perceived as a test by them. In addition to the lexical overlap task, the Receptive One-Word Picture Vocabulary Test (ROWPVT) bilingual version.

Besides the drawbacks mentioned above, the PPVT only includes the measure of the concrete component of language and may overrate reading and cognition in children (Richman, 1979, as cited in Henninger, 2011). Thus, it is recommendable to use it with a complete assessment battery (Sattler, 2001, as cited in Henninger, 2011).

### ***The MacArthur Bates Communicative Development Inventories (CDI)***

The MacArthur Bates Communicative Development Inventories (CDI) is a report given by the children's caregivers and is used to assess verbal and nonverbal language. It has 6 scales and a total of 949 items (Farkas, 2011). This inventory is used to identify children's grammar abilities, gestures, and knowledge of words both receptively and expressively (MacArthur Bates CDI, n.d). The CDI is composed of two inventories, and the first one, Vocalizations, first words, and gestures, is implemented with children from 8 to 15 months. Similarly, the other inventory, Vocalization, words, and grammar, is used with children whose ages range from 16 to 30 months (Jackson-Maldonado et al., n.d.).

**Benefits of using the MacArthur Bates Communicative Development Inventories CDI.** The Communicative Development Inventories is a valid and reliable instrument (Fenson et al., 1994, as cited in Vagh et al., 2009). In addition, it has several benefits for its application according to Vagh et al. (2009) who stated that:



It is cost effective, it is minimally intrusive, it is not context or task specific, it is not hindered by children's ability to follow instructions, it is not contingent on children's attentional state, and it is more feasible to use for repeated assessments (p. 1546).

**Limitations of the CDI.** The CDI is an instrument widely used in countries such as the United States where there is an increasing population of infants who come from bilingual backgrounds. Consequently, as stated by Vagh et al. (2009), it was “normed based on parent rather than teacher report.” (p. 1546). This hinders the application of this tool in contexts such as *Centros de Desarrollo Infantil* where parents have a very limited English language knowledge to be able to complete a report like this for their children. Although this instrument has been used by some researchers as both parent and teacher reports, and a high consistency of the teacher reports has been accounted, its use by teachers is still complex. Namely, teachers’ capability of reporting for each child in large classrooms is lower (Vagh et al., 2009), and therefore, might not represent a complete screen of children’s vocabulary knowledge.

On the other hand, there is a likelihood of underestimating children’s knowledge when the report is given by a single caregiver (De Houwer et al., 2005, as cited in Vagh et al., 2009) even if that person is a competent language speaker. In fact, it is usually recommended that the CDI report is completed by different caregivers to have a proper understanding of children’s vocabulary knowledge.

Besides the previously mentioned limitations of the CDI, it is imperative to point that the scores obtained in a language report like this, despite appearing to be commensurable, are not easy to compare with other language scores. In fact, Thordardottir (2005, as cited in Thordardottir 2011) asseverated that the Mean Length of Utterance MLU and scores for vocabulary obtained by using the CDI inventory were “not directly comparable between French and English-Speaking children in Montreal” (p. 440).

### ***The Expressive One-Word Picture Vocabulary Test (EOWPVT)***

The Expressive One-Word Picture Vocabulary Test (EOWPVT), as explained by (Michalec & Henninger, 2011), is a norm-referenced individual assessment that aims at identifying whether individuals from 2 years age up to 18 years 11 months can name in English some things shown to them in different pictures. The kit for this measure has 170 test plates located in a spiral-shaped trestle. This instrument relies on the use of cues to help the examinees identify the important features of each picture (Martin & Brownell, n.d.).

**Benefits of implementing the EOWPVT.** This test is untimed and can be administered to a broad population. Additionally, it can be completed in just 20 minutes, making the scoring process simple (Martin & Brownell, n.d.) and practical. Besides, The EOWPVT in its Spanish-English Bilingual version admits a label for the object shown in either English or Spanish or both (Hoff et al., 2014). This way, the path to assess two languages is open and recommendable for young children who are still acquiring their first language. Thus, researchers may find it appropriate to measure infants' first language domain as well as the second or foreign one by implementing the same instrument.

In addition, the test is coherent with what is recommended when assessing dual language learners (Espinosa & López, 2007; Peña & Halle, 2011, as cited in Manz et al., 2016) and was normed on a sample of 2327 infants. Similarly, it enjoys high internal consistency of up to .98 (Barnet et al., 2008). Furthermore, it was co-normed with the Receptive One Word Picture Vocabulary Test (ROWPVT), making it possible to use both together to assess receptive and expressive vocabulary knowledge in children. This may represent a significant resource to compare children's vocabulary knowledge receptively and expressively. (Brownell, n.d.).

Besides the previously mentioned advantages, the validity of this instrument when used together with other measurements of cognition, academic skills, comprehension, and

production of vocabulary has been monitored by the authors. Accordingly, the consistency between the EOWPVT and these other measures ranges from .64 to .89 (Michalec & Henninger, 2011).

**Limitations of the EOWPVT.** “The bilingual version was normed on a U.S. national sample of Spanish-English bilinguals” (Hoff et al., 2014, p. 437), which means there may be discrepancies with the Spanish-speaking population who do not live in the United States such as children who live in some monolingual countries. Henceforth, more research is needed to prove the applicability of this instrument in different contexts such as *Centros de Desarrollo Infantil* where English is not usually spoken outside the classroom or at home, and consequently, children’s exposure to it is more limited. Additionally, this test measures just a part of the children’s vocabulary, and consequently, it should be implemented with other instruments so as to be able to have an accurate understanding of infants’ vocabulary knowledge (Michalec & Henninger, 2011).

All in all, the MacArthur Bates Communicative Development Inventories CDI, the Expressive One Word Picture Vocabulary Test EOWPVT, and the Peabody Picture Vocabulary Test PPVT have become well-known and widely used instruments to assess the capabilities of children to understand and produce words. This suggests that it is necessary to properly identify which instruments aim at assessing receptive and which ones productive vocabulary. Similarly, it is imperative to identify in which contexts and with which kinds of population they were implemented.

### **Types of vocabulary knowledge analyzed in this review**

As it was already mentioned, there are different types and degrees of vocabulary knowledge and there are different instruments employed to assess each of them. What concerns this study is how to assess vocabulary breadth since “researchers have made major distinctions between competence in comprehending versus producing words” (Grøver, 2007,

p.23). Hence, the current systematic review analyzes the instruments used to assess receptive vocabulary and expressive (or productive) vocabulary.

### ***Receptive Vocabulary***

Among the articles filtered in this study, 48% of them measure receptive vocabulary utilizing any instrument and some articles even approached the measurement of both receptive and expressive vocabulary.

Receptive vocabulary is defined by Burger & Chong (2011) as all the vocabulary a person can understand when exposed to it orally, in written form, or when the word is signaled. According to Benedict (1979, as cited in Maier et al. 2016), receptive vocabulary emerges before expressive vocabulary knowledge. It is one of the most important stages when acquiring a language as it represents the first communication strategy of toddlers and children. Infants start to point out things they find around in order to communicate their intentions and thoughts. Accordingly, a possible alternative to assess children's vocabulary knowledge is to have them point out some objects that are mentioned by the examiner. Some researchers manage to assess receptive vocabulary knowledge in bilingual children by using instruments that follow this principle such as the Peabody Picture Vocabulary Test PPVT.

### **Two studies in which receptive vocabulary knowledge was assessed**

In a recent study conducted by Reilly et al. (2020) in which 3349 children from Head Start school in the United States participated. Most of the participants of the study came from Mexican families who migrated to the U.S., and 37% of children's mothers held less than a high school diploma. Some aspects of academic literacy and classroom environments were assessed as the aim of this study. However, while doing so, researchers found that 29.3% of those children were identified as dual language learners, having Spanish as their primary language at home. Therefore, the PPVT was used to assess children's receptive vocabulary,

having infants to point the picture that belonged to a spoken stimulus previously given by the examiner.

Moreover, Hammer et al. (2008), studied the influence of Head Start programs in the language development of 83 children from Puerto Rican neighborhoods in Pennsylvania. Correspondingly, the authors implemented different resources to map children's language skills. The instruments used were the Test of Early Language Development-3 (TELD-3; Hresko et al., 1999, as cited in Hammer, 2008) to test comprehension, the Preschool Language Scale-3 (Spanish version) (PLS-3; Zimmerman et al., 1992, as cited in Hammer, 2008) to measure Spanish language domain, the Peabody Picture Vocabulary-III (PPVT-III; Dunn & Dunn, 1997, as cited in Hammer, 2008) and the *Test de Vocabulario Imágenes-Peabody (TVIP)*; Dunn et al., 1986, as cited in Hammer, 2008) to measure receptive vocabulary in Spanish and English.

What is important to highlight from these studies is that even though the focus of the research was not merely vocabulary, it was included due to the importance of mapping children's vocabulary knowledge when talking about language growth in general or academic literacy. Furthermore, these two studies were conducted in Head Start where there was a considerable population who came from disadvantaged backgrounds such as children whose relatives' educational levels are not so high and being the majority of them Latino dual language learners.

Despite the similarity in some aspects of their family backgrounds between the population in these studies and the kind of children found in the *Centros de Desarrollo Infantil* in Pereira, there are important differences to highlight. To start with, most of the participants of the previously mentioned studies were exposed to English at least in 10% of their interactions or even from birth while children from the *Centros de Desarrollo Infantil*

are exposed to English just some hours a week and in limited interactions. In addition, a considerable number of parents from the Head Start Programs reported to speak more Spanish than English (68%) or both languages equally at home (24%) in Spring of the first year (Hammer et al., 2008) while the parents of children enrolled in the *Centros Desarrollo Infantil* do not speak English at all.

### ***Expressive vocabulary***

Expressive vocabulary can be understood as “the words that a person can express or produce” (Burger & Chong, 2011, para. 2), and there is evidence of a relationship between the development of productive vocabulary by toddlers and the process of acquiring a language (Bates & Goodman, 2001, as cited in Cote & Bornstein, 2014). In the current study, 57,4% of the articles which assessed vocabulary knowledge dealt with productive vocabulary, which means most of them focused on this aspect of language.

### **Two studies in which expressive vocabulary knowledge was assessed**

In the research conducted by Vagh et al. (2009) with 85 children from Head Start and Early Head Start programs in New England, bilinguals’ and monolinguals’ growth of expressive vocabulary was measured. To do so, the authors implemented the MacArthur Bates Inventories: Words and sentences :Toddler long form (Fenson et al., 1993, as cited in Vagh et al., 2009) and combined this parent report tool with the Woodcock Language Proficiency Battery-Revised (Woodcock, 1995, as cited in Vagh et al., 2009). The latter instrument was used to guarantee the quality of the parents and caregiver reports.

Likewise, in another study conducted by Hoff et al. (2014) with 58 children, the changes in expressive vocabulary among infants at 22, 25, and 30 months were analyzed. The participants were classified as coming from monolingual-English homes (31), bilingual homes in which one parent was a native English speaker and the other parent was a native

Spanish speaker (15), and bilingual homes being both parents native Spanish speakers (11). To measure the expressive abilities of children, the McArthur Bates Communicative Development Inventory (CDI; Fenson et al., 2007 as cited in Hoff et al., 2014) and *Inventario del Desarrollo de Habilidades Comunicativas (IDHC*; Jackson- Maldonado et al., 2003, as cited in Hoff et al., 2014) for Spanish were used. Similarly, The Expressive One-Word Picture Vocabulary Test (EOWPVT; Brownell, 2000, 2001, as cited in Hoff et al., 2014) was used to assess Expressive vocabulary at 48 months. The CDI English and Spanish versions were implemented as they are consistent for monolingual and bilingual children (Fenson et al., 2007; Jackson-Maldonado et al., 2003; Marchman & Martínez- Sussmann, 2002, as cited in Hoff et al., 2014). Conversely, the EOWPVT was implemented given the fact that the CDI report is normed to be used until the age of 30 months. In addition, the two measures were highly consistent in another project with children of 30 months of age. The English version was implemented with monolingual children, and the Spanish-English version was implemented with bilingual children. (Hoff et al., 2014).

The implementation of the CDI and the EOWPVT in these impactful studies is evidence of the high reliability and acceptance of these instruments. Besides, it proves the applicability they may have with dual language learners. Nevertheless, the applicability of such a tool in a context different from migrant communities in the U.S or with children whose parents are monolingual Spanish speakers is still uncertain. For instance, the CDI checklist is designed to be administered by parents who are speakers of the language, and it would not be accessible for most of the parents whose children are enrolled in the *Centros de Desarrollo Infantil*. The tool by itself considers parents already proficient language speakers, and if applied in a monolingual community to measure English expressive skills, it would need to be handled by proficient language speakers. In the case of the *Centros de Desarrollo Infantil*, the only ones who could apply it most of the time would be the University English

practitioners. Furthermore, those practitioners would be in charge of administering it not for a single child but many of them in a limited amount of hours per week. What is more, these instruments have not been normed in a context such as the *Centros de Desarrollo Infantil*, where infants learn English as a foreign language, and therefore, its reliability in this setting is not verified nor documented.

### **Final Considerations for assessing vocabulary knowledge**

When assessing young language learners, it is important to consider the different variables that can impact either positively or negatively the measurement of children's capabilities. Similarly, it is important not to generalize as different language learners may represent a drastic shift in the assessment practices, and different resources should be implemented to guarantee reliability in this process.

To start with, in order to guarantee reliability and reinforce some assessment instruments, some authors did not limit themselves to use just than one tool when measuring vocabulary knowledge in children. Instead, they implemented different instruments so as to have a proper screen of infants' knowledge. That is the case of the study conducted by Vagh et al. (2009) in which the focus was to measure the vocabulary growth of bilingual and monolingual children. To do so they implemented the McArthur Communicative Development Inventories: Words and sentences (toddlers long form). Thus, so as to guarantee the reliability of this parent report, they used the Peabody Picture Vocabulary Test and the Picture Vocabulary subtest of Woodcock Language Proficiency Battery-Revised WLPB-R, which is a standardized test of receptive language. This suggests that a single test should not be used by examiners since it would not provide a complete understanding of children's knowledge. Rather, it should be used in compass with other instruments, observations, and research on the field. Similarly, examiners should be aware of any impairment of children that can, by any means, bias the assessment process (Michalec & Henninger, 2011).



Additionally, the different degrees and types of bilingualism should be considered when assessing learners' skills. In fact, Thordardottir (2011) asserts that there is not a unique rule under which bilingual infants can be categorized. Instead, the vocabulary knowledge expected from them needs to be structured considering children's language exposure and history.

Ultimately, after exploring the different instruments to assess vocabulary breadth, some findings reveal that some of those instruments can be adjusted to be implemented in another setting. Not surprisingly, they could be piloted and normed in contexts such as the *Centros de Desarrollo Infantil*, where dual language learners are exposed to two languages at a different pace and under specific circumstances. In terms of practicality, applicability, and the strategies to measure bilingual infants' language skills, the EOWPVT and the ROWPVT appear to be feasible instruments.

### **Chapter 3. Assessment of Literacy Skills**

#### **Assessing emergent reading skills**

Emergent literacy skills in children can represent a proper indicator of later reading success (Wilson & Lonigan, 2009). This skill was thought to start developing at school; however, some researchers have started to speak about the idea that the reading process begins in an early stage of life (Wilson & Lonigan, 2009). Consequently, some authors have pointed out the need for measuring children's literacy skills from an early stage (Han et al., 2014), and some of the literature reviewed in the present study approach the assessment of literacy skills, specifically of emergent reading abilities.

It is important to highlight that according to some authors, "listening comprehension has been shown to predict later performance in reading comprehension in both the first and second language" (Gough & Tunmer, 1986; Royer & Carlo, 1991, as cited in Gabriele et al., 2009, p536). This is a plausible reason why there is much more literature related to the assessment of literacy skills in early childhood that includes somehow listening comprehension tasks. Therefore, this chapter is going to be focused on literacy skills related to reading success and the assessment of listening comprehension is going to be dismissed. This does not mean that listening comprehension is not an interesting nor important aspect to be assessed but that the literature found that included listening comprehension bent towards the measurement of pre-reading or other skills.

Among the articles filtered in the current study, 36,8% assessed literacy skills related to pre-reading, and the tendencies among the tools used to accomplish the measurements of this aspect are listed in table 5.

**Table 5***Ranking of tools that measure pre-reading skills*

| <b>Assessment instrument</b>            | <b>Version</b>   | <b>Frequency of usage among the studies found</b> |
|---|--|---|
| Woodcock-Johnson Tests of Achievement   | Woodcock- Johnson Tests of Achievement (WJ III; Woodcock & Johnson, 1989, as cited in Barnett et al., 2008)<br><br>Woodcock- Johnson Tests of Achievement (WJ III; Woodcock et al., 2001, as cited in Burchinal et al., 2012; Greenfader & Miller, 2014; Reilly et al., 2020; Richards-Tutor et al., 2013)<br><br>The Woodcock Muñoz test (Woodcock & Muñoz-Sandoval, 1996, as cited in Barnett et al., 2008; Burchinal et al., 2012; Greenfader & Miller, 2014) | 11,4%   |
| The Get Ready to Read! - Screening tool | The Get Ready to Read! (E-GRTR; Whitehurst & Lonigan, 2001, as cited in Barnett et al., 2008; Pendergast et al., 2015; Wilson & Lonigan, 2009)<br><br>The Spanish Get Ready to Read (S-GRTR; Lonigan, 2003, as cited in Pendergast et al., 2015; Wackerle-Hollman, et al., 2019)<br><br>The Get ready to read! – Revised (E-GRTR-R; Whitehurst & Lonigan, 2009, as cited in Huennekens & Xu, 2016)   | 11,4%   |

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|   |  |      |
|---|--|------|
| Phonological awareness: Screening Instrument for Early Literacy   | Phonological awareness: Screening Instrument for Early Literacy (PALS-Pre-K; Invernizzi et al., 2001, as cited in Ryan 2007; Han et al., 2014<br><br>Phonological awareness: Screening Instrument for Early Literacy (PALS-Pre-K; Invernizzi et al., 2004, as cited in; Nicolopoulou et al., 2015; Xu, 2015)<br><br>Phonological awareness: Screening Instrument for Early Literacy (PALS-Pre-K; Invernizzi et al., 2003, as cited in Pendergast et al., 2015) | 9,1% |
| Dynamic Indicators of Basic Early Literacy Skills                 | Dynamic Indicators of Basic Early Literacy Skills (DIBELS; (Good & Kaminski, 2002, as cited in Ansari & Winsler, 2016; Jiménez-Castellanos et al., 2014; Richards-Tutor et al., 2013)<br><br>Indicadores Dinámicos del Éxito en la Lectura (IDEL; Good, et al., 2003, as cited in Kelley, et al., 2015)  | 9,1% |
| Test of Preschool Early Literacy                                  | Test of Preschool Early Literacy (TOPEL; Lonigan, et al., 2007, as cited in Goodrich et al., 2019; Han et al., 2014; Xu, 2015; Wilson & Lonigan, 2009)   | 9,1% |
| Preschool Comprehensive Test of Phonological and Print Processing | Preschool Comprehensive Test of Phonological and Print Processing (P-CTOPPP; Lonigan et al., 2002, as cited in Dixon, 2010; Farver et al., 2009;   | 9,1% |

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|   |   |      |
|---|---|------|
|   | Greenfader & Miller, 2014; Sparks & Reese, 2013)  |      |
|   | The Pre-school Comprehensive Test of Phonological & Print Processing: Spanish version (P-CTOPPP-S; Lonigan et al., 2002, as cited in Farver et al., 2009)   |      |
| Test of Preschool Early Literacy              | Test of Preschool Early Literacy (TOPEL; Lonigan et al., 2007, as cited in Goodrich et al., 2019; Han et al., 2014; Wilson & Lonigan, 2009; Xu, 2015)   | 9,1% |
| Test of Early Reading Ability                 | Test of Early Reading Ability-Third Edition (TERA-III; Reid et al., 2001, as cited in Naqvi et al., 2013; Sylvester & Kragler, 2012)  | 4,5% |
| Woodcock Language Proficiency Battery-Revised | The Woodcock Language Proficiency Battery-Revised (WLPB-R; Woodcock, 1991, as cited in Dixon, 2010; Hammer et al., 2020)<br><br>The Spanish Batería Woodcock- Muñoz—Revisada (Woodcock & Muñoz-Sandoval, 1995, as cited in Hammer et al., 2020)                 | 4,5% |
| Individual Growth and Development Indicators  | Individual Growth and Development Indicators (IGDIs; McConnell, 2002, as cited in Wilson & Lonigan, 2009)<br><br>The Spanish Individual Growth and Development Indicators (S-IGDIs; Wackerle-Hollman, et al., 2016, as cited in Wackerle-Hollman, et al., 2019) | 4,5% |

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|   |  |      |
|---|--|------|
| Phonological Awareness<br>Literacy Screening–<br>Kindergarten       | Phonological Awareness Literacy Screening–<br>Kindergarten (PALS-K; Invernizzi et al., 2001 as<br>cited in Ryan, 2007)           | 2,3% |
| The Test of Phonological<br>Awareness in Spanish                    | The Test of Phonological Awareness in Spanish<br>(TPAS; Riccio et al., 2004, as cited in Wackerle-<br>Hollman, et al., 2019)     | 2,3% |
| Phonological Awareness<br>Test                                      | Phonological Awareness Test (Adapted from<br>Lopez and Greenfield, 2004a, 2004b, as cited in<br>Lopez, 2012)                     | 2,3% |
| The Preschool and<br>Primary Inventory of<br>Phonological Awareness | The Preschool and Primary Inventory of<br>Phonological Awareness (PIPA; Dodd et al.,<br>2000, as cited in Morris & Leavey, 2006) | 2,3% |
| Gates MacGinitie Reading<br>Test                                    | Gates MacGinitie Reading Test (Gaux, 1999, as<br>cited in Gabriele et al., 2009)   | 2,3% |
| EFL pedagogic approach  | EFL pedagogic approach (Lucas et al., 2020)  | 2,3% |
| The Pre-LAS   | The Pre-LAS (Duncan & DeAvilla, 1998, as cited<br>in Jung et al., 2016)  | 2,3% |
| Test of Early Language-3  | Test of Early Language-3 (TELD-3; Hresko et<br>al., 1999, as cited in Moedt & Holmes, 2020)                                      | 2,3% |

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**Source:** own

*Note.* This table contains the instruments used to assess pre-reading skills and their frequency among the articles found. The different versions of the tests found in the articles were listed. However, all of the versions of the same test were counted as one. In addition, some tests listed in this table are batteries that measure different aspects of bilingualism, and they were included here as those tests were used in the articles gathered to assess pre-reading skills.

Some of the trendiest ones were the Woodcock-Johnson III, the GRTR, and the PALS-Pre-K, which are explored below.

***Woodcock-Johnson III (Woodcock, McGrew, & Mather, 2001a)***

The Woodcock–Johnson Psycho-Educational Battery-Revised (WJ-R) is an assessment instrument of achievement and cognitive abilities of English Language abilities, specifically in reading, writing, and oral skills. Its Spanish version is The Batería III Woodcock-Muñoz™ (Batería III; Muñoz-Sandoval et al., 2005a, as cited in Schrank et al., 2005, p. 1). This test is designed to be administered to people from 2 to 90 years old, and it consists of two distinct and co-normed batteries: The Woodcock-Johnson Test of Achievement (WJ III ACH) and the Woodcock-Johnson Test of Cognitive Abilities (WJ III COG). For the current documentary review, the analysis is going to be focused on the WJ III ACH. This battery (forms A and B) contains 22 subtests which are grouped into two batteries: that contain 12 subtests, including Letter-Word Identification, Writing fluency, Spelling, Story recall, Reading fluency, among others; and the extended battery with 10 subtests, including Punctuation and Capitalization, Picture Vocabulary, Reading Vocabulary, Spelling of sounds, and Oral comprehension, among others. The test guidelines include recommendations for adjustments to a wide range of individuals with different characteristics including young learners (Blackwell, 2001).

**Two studies in which the WJ III was administered.** A research study conducted by Burchinal et al. (2012) was intended to observe the relationship “among proportion of instruction in Spanish, observed classroom quality, and preschool-aged children academic skills” (p.1). Therefore, 357 Spanish-speaking children (4 years old) participated, and some assessment instruments were used such as the Academics snapshot to detail children’s academic experiences, and to measure language proficiency, researchers administered the

PreLAS, the *Test de vocabulario en imágenes Peabody (TVIP)*; Dunn et al., 1986, as cited in Burchinal et al., 2012), and The Peabody Picture Vocabulary Test- 3<sup>rd</sup> edition (PPVT III; Dunn & Dunn, 1997, as cited in Burchinal et al., 2012). Furthermore, the Bateria Woodcock Muñoz (Woodcock & Muñoz-Sandoval, 1996, as cited in Burchinal et al., 2012) was used to assess emergent literacy in Spanish, and The Woodcock-Johnson III (Woodcock et al., 2001, as cited in Burchinal et al., 2012) was used for English, specifically The Letter-Word Identification subtest. These assessments took about 45 minutes or 1 hour to be completed and were administered one during fall and one during spring.

In addition to the above-mentioned study, Richards-Tutor et al. (2013), observed some methods used to determine response to intervention in children learning English in kindergartens. For this, 114 Spanish-speaking children from Southern California participated. Children undergone some pretests and then, received intervention in code-related skills such as phonological knowledge. Students were administered the English blending measure from the Comprehensive Test of Phonological Processing (CTOPP; Wagner et al., 1999, as cited in Richards-Tutor et al., 2013), and the Word Identification and Word Attack subtests from the Woodcock-Johnson III (Woodcock et al., 2001, as cited in Richards-Tutor et al., 2013), were utilized to measure children's word reading and decoding. Besides, receptive vocabulary was assessed through the Peabody Picture Vocabulary Test (English version; Dunn & Dunn, 1981, as cited in Richards-Tutor et al., 2013), and the Spanish version (Dunn et al., 1986, as cited in Richards-Tutor et al., 2013). Additionally, the DIBELS (Good & Kaminski, 2002, as cited in Richards-Tutor et al., 2013) was used to monitor students' progress and students who might be at risk. These instruments were administered by teachers or trained graduate students.

What is important to highlight once more is that both studies incorporated a battery of assessments and not just one. This is especially important to understand that to have a broad



picture of children's literacy skills, it is not enough to apply a given subtest and that training for teacher and intervention for students in the areas being assessed are unmistakably necessary.

**Benefits of using the WJ III.** The reliability reported for the WJ III is quite high, and it was normed with 8,818 people ranging from 2 to 90 years old and from 100 geographically diverse communities along the U.S (Blackwell, 2001).

**Limitations of the WJ III.** Despite implementing different strategies to decrease the test complexity for learning, how to administer the tool, and score it, training in educational measurement and ability at decision making are still needed to handle this measure (Mather & Woodcock, 2001a, 2001b, as cited in Blackwell, 2001). Additionally, even though the WJ III was normed with a great number of individuals, as far as we know, it was not normed in a context different than the U.S.

**Applicability of the WJ III in the CDIs.** As the WJ III was normed in the U.S., little information is available for the applicability and psychometric properties of this tool in a context such as *Centros de Desarrollo Infantil*. Besides, the complexity of its administration and scoring represents a significant drawback if it is to be implemented in *Centros de Desarrollo Infantil* as the English teachers are most of the time undergraduate students without much experience in educational assessment.

### ***Get Ready to Read (GRTR)***

English Get Ready to Read! (E-GRTR) is a 20-item assessment instrument designed to measure 4-year-old's English code-related skills such as phonological awareness, letter knowledge, and print awareness. There is a Spanish version called The Spanish Get Ready to Read (S-GRTR). Each item represents an oral question read aloud by the examiner such as "Which one is a B"? and a picture page with four options, including the correct response and

three foils (e.g., B, M, L, S; Pendergast et al., 2015). For instance, within the first item of the test, the examiner shows pictures of a book and asks about the specific parts of that book such as the back of the book, and the child answers by signaling what s/he thinks is the correct picture out of four. Printed knowledge and phonological awareness answers are gathered into one score at the end of the GRTR test (Wilson & Lonigan, 2009). The GRTR has reported internal consistency (alpha coefficient) of .78, and some authors assert that it correlates well with other instruments that assess letter and language knowledge (Whitehurst & Lonigan, 2001, as cited in Barnett et al., 2008); (Phillips et al., 2008; Whitehurst, 2003, as cited in Pendergast et al., 2015).

**Two studies where the GRTR was implemented.** In a study conducted by Pendergast et al. (2015), the relation between prekindergarten students' invented spelling and their English and Spanish early literacy abilities was observed. The study was conducted in the Southeast of the U.S., and 141 Spanish speakers (4 years old) participated. During this research, children were intervened to promote their invented spelling through book-reading practices, and data were gathered during 2 years. Besides assessing children's vocabulary knowledge, children's literacy skills were measured by means of the English Get Ready to Read! (E-GRTR; Whitehurst & Lonigan, 2001, as cited in Pendergast et al., 2015), the Spanish Get Ready to Read! (S-GRTR; Lonigan, 200, as cited in Pendergast et al., 2015), and the Phonological Awareness Literacy Screening–Kindergarten (PALS-K; Invernizzi et al., 2003, as cited in Pendergast et al., 2015). These assessments were conducted in English but also Spanish so as to examine whether children's first language had an impact on their English Spelling since according to some researchers (Chiappe et al., 2007; Marian et al., 2003, as cited in Pendergast et al., 2015), children's first language can affect emergent literacy skills in their second language. The assessment procedure was conformed of five

protocols that were conducted one by one and therefore took five days with each child. The instruments were implemented by trained research assistants.

Besides, in a research conducted by Barnett et al. (2008), which was mentioned in the previous chapter, the accuracy of the Tools of the Mind curriculum to improve 3- and 4-year-olds' education in New Jersey was examined. To measure the effectiveness of that curriculum, the researchers used several assessment tools to measure vocabulary and oral language skills in general. In addition to this, children's literacy skills were measured using The Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R; Woodcock & Johnson, 1989, as cited in Barnett et al., 2008) and Get Ready to Read (GRTR; Whitehurst & Lonigan, 2001, as cited in Barnett et al., 2008). Each child was assessed with six different instruments in two assessment sessions so as not to have too-long sessions. These measures were conducted child by child in a quiet space and were scheduled so as not to hinder children's routines. Concerning the examiners, they were graduate students in education and held advanced degrees and experience at research and were trained to implement and score the children's assessment.

The above-mentioned studies reflect what it takes to implement assessment instruments such as the Get Ready Read since, in this case, it requires that the personnel who implement it are trained in the assessment procedures to guarantee validity. Similarly, having to perform different assessments to students in one-by-one sessions may not be practical nor feasible sometimes when there is just one practitioner/teacher in charge of many students. Thus, this reflects a need of approaching realistic perspectives regarding assessment procedures and the importance of considering and promoting practicality for these screening tools as well as proper training for the examiners.

**Benefits of using the GRTR.** The E-GRTR and S-GRTR are highly useful to identify children at risk for under-expected early literacy achievements and infants with strengths in

literacy skills since the scores of it are correlated with further literacy outcomes (Farver et al. 2007, as cited in Pendergast et al., 2015). Additionally, this instrument takes less than 10 minutes to be administered, which makes it practical for teachers or examiners who may need to measure different children's literacy skills. Besides, it reports high internal consistency (alpha coefficient of .78; Barnett et al., 2008) which confirms its reliability and acceptability.

**Limitations of the GRTR.** Even though there is a Spanish and an English GRTR test version, they cannot be applied together rather as two monolingual tests. This is something that highly affects practicality as students would need to be assessed one by one and twice (for the Spanish and English versions). Moreover, as it happened in Huennekens & Xu (2016), examiners need to be trained about how to place the testing materials, get the test scores, build rapport with examinees, record children's answers, and more. This is something that makes evident the need for proper preparation of test administrators, which is not always completely possible when there is a big population of practitioners or teachers to train.

**Applicability of the GRTR in the CDIs.** The GTR is a reliable and well-recognized instrument to assess early literacy and can be certainly implemented in contexts such as the *Centros de Desarrollo Infantil*. Nonetheless, more research about its adjustability and internal consistency in these specific contexts is needed. Additionally, more practicality is needed for this instrument since it is sometimes unfeasible to say that a teacher would be able to implement an assessment instrument for each student in separate sessions and through repeated occasions when there is a large classroom to take care of.

***Phonological awareness: Screening Instrument for Early Literacy (PALS-Pre-K).***

PALS-Pre-K is a screening tool that assesses early knowledge of literacy fundamentals that are strongly related to later reading success and was created as a resource for the Early Intervention Reading Initiative (EIRI) from the state of Virginia, U.S. This

instrument becomes a plausible resource to determine children's early knowledge regarding reading skills and may be a useful indicator of children's needs in terms of early literacy (Phonological Awareness Literacy Screening PALS, n.d). This tool includes the assessment of alphabet knowledge, phonological awareness, and print awareness which are explained below.

**Alphabet knowledge.** According to researchers, the most accurate indicator of emergent reading skills is the quick naming of the letters of the alphabet (Adams, 1990; Badian, 2000; Snow et al., 1998, as cited in Invernizzi et al., 2004). In fact, researchers assert that poor letter knowledge of children will hinder literacy development (Huennekens & Xu, 2016). The piloting studies for the PALS suggest that children are more likely to have tacit knowledge of upper-case letters before fully recognizing the lower-case letters. Thus, the PALS-Pre-K screening tool is designed to assess first upper-case letter knowledge, and when children have achieved at least 16 upper-case letters, they move to the following task which is intended to measure children's knowledge regarding lower-case letters. After completing these first tasks, children are assessed to identify letter sounds since the literature confirms that when children know some lower-case letters, are parallelly prepared to recognize some alphabet sounds (Invernizzi et al., 2004).

**Phonological Awareness.** Phonological Awareness is described by some authors as the capability to recognize and use the sounds of a given language regardless of meaning (Lonigan, 2006, as cited in Wilson & Lonigan, 2009), and it is deemed to have a strong relation to later success at reading (Blachman, 2000; Morris et al., 2003; Swank & Catts, 1994, as cited in Invernizzi et al., 2004); (Bryant et al., 1990; Scanlon & Vellutino, 1996; Schatschneider et al., 2004, as cited in Huennekens & Xu, 2016) and at school (Byrne & Fielding-Barnsley, 1993, as cited in Sodoro et al., 2002). Similarly, children's phonological awareness has been recognized as a key aspect for the development of literacy skills for both

monolinguals and language learners (Lesaux & Geva, 2006, as cited in Han et al., 2014). The assessment of phonological awareness in the PALS-Pre-K is conducted through the assessment of beginning sound awareness and rhyme awareness.

***Beginning sound awareness.*** During the Beginning sound awareness task, children are asked to sound out the first sound of a word (Nicolopoulou et al., 2015). On the subject of this, different authors have argued that beginning sound awareness is truly important for the development of early reading skills (Byrne et al., 1997; Johnston et al., 1996, as cited in Invernizzi et al., 2004).

***Rhyme awareness.*** Rhyme awareness is measured by asking children to signal a picture that represents a rhyming word for a stimulus word given (Nicolopoulou et al., 2015). This aspect was included in the PALS-Pre-K since, as it is stated in the manual of the test, it relates well with later reading skills (Invernizzi et al., 2004).

***Print awareness.*** According to Shanahan and Lonigan (2010, as cited in Han et al., 2014), print awareness refers to the knowledge children have regarding how texts are conventionally presented, that is to say from left to right and front to back in the western cultures, and some elements related to print knowledge such as author or book specific parts. Some researchers have asserted that in order to acquire the skills needed for reading, being able to easily identify concepts related to printed material is fundamental (Chaney, 1992; Clay, 1977; Lomax & McGee; Saracho, 1985, as cited in Invernizzi et al., 2004); (Ezell & Justice, 2005, as cited in Pendergast et al., 2015). Accordingly, the PALS-Pre-K includes the assessment of print and word awareness, which is usually implemented within reading aloud exercises (Invernizzi et al., 2004).

**Two studies where the PALS PreK was implemented.** In a study conducted by Nicolopoulou et al. (2015), a storytelling and story-acting practice (STSA) was implemented

in the preschool curriculum and analyzed in order to identify its potential to boost early literacy, oral language skills, and social competence in children. In total, 104 preschool children from low-income and diverse ethnic backgrounds in the northeastern U.S. participated in the study (most of them were 3 or 4 years old). In order to measure children's oral skills, two instruments were implemented: The Expressive Vocabulary Test (Williams, 1997, as cited in Nicolopoulou et al. 2015), and an adaptation of the Test of Narrative Language (Gillam & Pearson, 2004, as cited in Nicolopoulou et al., 2015); and the PALS PreK (Invernizzi et al., 2004, as cited in Nicolopoulou et al. 2015) was utilized to assess emergent literacy skills. Besides these, other instruments were used to measure children's willingness to cooperate, social competence, self-regulation, among others. The testing procedures were conducted by trained graduate and undergraduate students.

Moreover, in a study conducted by Ryan (2007), 4-year-old Latino students coming from low-income families participated. Those infants were enrolled in the Even Start program of Manchester (New Hampshire), which is a program designed to handle U.S. literacy issues (Soliman, 2018). This study was designed to confirm whether bilingual education in preschool was effective to promote literacy skills. The literacy performance was compared among students who had received Even Start (bilingual) intervention and those who had received standard preschool or kindergarten. In a first analysis, a preschool pretest, preschool posttest, and kindergarten posttest were conducted. After that, as a second wave analysis, there was an incorporation of new data for the pretests and posttest. The measures used in this study were the PALS-Pre-K (Invernizzi et al., 2001, as cited in Ryan 2007) to assess literacy skills in preschool, and the PALS- K ( Invernizzi et al., 2001, as cited in Ryan 2007) for the kindergarten stage. These instruments were utilized in this research due to their high psychometric qualities, and they were administered by teachers who had been trained in these testing procedures.

What is positive to highlight from these studies is that they both were conducted either with Latino students or children from diverse ethnic backgrounds which inevitably includes Spanish speakers and language learners. Nonetheless, these studies were conducted in the U.S. where the exposure to the language being learned is quite different from the exposure in contexts such as the *Centros de Desarrollo Infantil*. Furthermore, it is imperative to highlight that in both studies, testing procedures were administered by trained personnel, and this is truly important to consider so as to guarantee testing quality. Therefore, there would be a need for proper training of practitioners in order to apply an assessment instrument like the PALS-Pre-K in *Centros de Desarrollo Infantil*.

**Benefits of using the PALS-Pre-K.** The PALS-Pre-k is an instrument that allows mapping children's emergent reading skills, and therefore it might make a proper indicator of infants' later school success. Besides, it becomes an ally to identify any possible reading impairment or difficulty from an early age, which may increase the options for intervention and success. The internal consistency of the PALS-PreK tasks ranges from .75 to .94 which makes it a highly reliable instrument to assess emergent reading skills.

**Limitations of the PALS-PreK.** The PALS-Prek is a recognized and appropriate instrument to assess early reading skills. Nonetheless, it is designed to be administered to children no younger than 4 years old (Nicolopoulou et al., 2015). Therefore, it is until that moment that children's emergent literacy skills can be mapped, leaving aside younger children and the possibility to identify those skills at an earlier age. Additionally, the PALS Pre-k is a 121-item test that may take longer to be completed (Wilson & Lonigan, 2009), which makes it unpractical for teachers that have limited time or have to pay attention to many students at the same time.



Additionally, some parts of this screening tool have been widely accepted and implemented. Nonetheless, not all of its parts enjoy this same irrefutability; that is the case of the rhyme awareness task which for some authors is not such a good aspect to consider when measuring emergent reading skills (Lonigan et al., 2008; Muter et al., 1997, Muter et al., 2004, as cited in Wilson & Lonigan, 2009).

Moreover, a great deal of literature endorses that reading comprehension is not just about decoding skills such as phonological awareness and word identification (Dickinson et al., 2003; NICHD Early Child Care Research Network, 2005; Snow, 1999; Whitehurst & Lonigan, 2001, as cited in Nicolopoulou et al., 2015). Accordingly, some authors confirm that the development of some oral-language abilities such as narrative skills at an early age is paramount in the acquisition of early literacy skills and later academic achievement (Dickinson & Tabors, 2001; Griffin, et al., 2004; Kendeou et al., 2009; Lynch et al., 2008; Reese et al., 2010, as cited in Nicolopoulou et al., 2015). Therefore, there is an obvious necessity to train and assess the development of not only decoding skills but also oral abilities, for which the PALS-Pre-K would not be enough since it mainly approaches the measurement of technical skills related to decoding.

**Applicability of the PALS-Pre-K.** An instrument such as the PALS-Pre-K could be certainly implemented in *Centros de Desarrollo Infantil* in Pereira. Nonetheless, there is a need for proper intervention to promote the emergence of reading skills. That is the case of phonological awareness, for example, since according to some researchers, children's reading skills are enhanced after receiving intervention in terms of this aspect (Ball & Blachman, 1991; Bradley & Bryant, 1985; Brady et al., 1994; Byrne and Fielding- Barnsley, 1991, 1993; Cunningham, 1990; Lie, 1991; Lundberg et al., 1980; O'Connor et al., 1993; Torgesen et al., 1992, as cited in Sodoro et al., 2002). Additionally, the Phonological Awareness Literacy Screening (PALS-Pre-K) could be administered to only part of the population of the *Centros*

*de Desarrollo Infantil* as it is designed to be implemented with children no younger than 4 years old, and this could be impractical for practitioners who could map only some students' early literacy skills and who deal with children whose ages are not homogeneous. Besides, the PALS-Pre-K was normed and piloted in the U.S. where the learning and bilingual conditions are different from the conditions in which other children such as the ones in which learners from *Centros de Desarrollo Infantil* develop their two languages, namely, learning a language as a foreign one and with limited exposure to the language being learned.

### ***Final considerations when assessing emergent reading skills***

Even though for some authors, literacy skills in children start to develop in preschool, it is important to consider the many factors that are involved in the process. Explicit instruction in phonological awareness and alphabet knowledge seems to be of high utility to enhance dual language learners' skills in both languages (National Early Literacy Panel, 2008, as cited in Huennekens & Xu 2016). Thus, it is imperative to highlight that to implement any assessment intended to measure children's literacy skills, those abilities need to be promoted through teaching practices. In addition, the process through which children acquire the ability to read is unique and does not only involve formal aspects to decode written language, but also the ability to express orally, and accordingly, literacy skills should be assessed together with oral skills such as the narrative ones so as to accurately map children's emergent literacy. What is more, the practicality of any assessment instrument should be considered since it is not implemented equally with the ideal conditions mentioned by the retailer than in contexts where children learn a language as a foreign one or where there are several children who need to be assessed in a single classroom with a single teacher/examiner.

Finally according to Cummins (1979, as cited in Huennekens & Xu, 2016) with his theory of transfer skill, there are 'common underlying proficiencies' (p. 250) in languages

which means that the first language will intervene in the process of acquiring a second language. In fact, some code-related skills such as alphabet knowledge in children's native language have been proved to be of utility in the acquisition of a second language (Dickinson et al., 2004, as cited in Huennekens & Xu, 2016). Hence, considering the promotion and enhancement of children's skills in their first language is out of discussion, and there is a need of committing to this endeavor as talking about bilingualism should not be only about focusing on the second or foreign language but the two languages being acquired.

### **Assessing Emergent Writing Skills.**

Research suggests that without needing direct teaching, children can grasp an impressive understanding of writing (Gillanders et al., 2017). Accordingly, this emergent skill is the basis of subsequent literacy gains (Whitehurst & Lonigan, 2001, as cited in Gillanders et al., 2017). The promotion and measurement of this ability become an essential process to be literate as according to Puranik & Lonigan (2012b, as cited in Diamond et al., 2013), children learn that messages can be conveyed through letters and print. In addition to this, there are reasons to think that writing develops through some stages (Teberosky, 1982; Tolchinsky, 2003, as cited in Gillanders et al., 2017); (Ehri, 1986; Frith, 1985; Henderson & Beers, 1980; Morris, 1983; Schickedanz & Casbergue, 2009, as cited in Pendergast et al., 2015), but those stages might vary across studies. Likewise, there has been a tendency to analyze children's writing abilities in a continuum process that goes from drawing and scribbling to writing children's first names (Diamond et al., 2008; Molfese et al., 2011; Welsch et al., 2003, as cited in Diamond et al., 2013).

Despite all the emphasis placed on the importance of the promotion and measurement of this ability, there are scarce sources of research regarding emergent skills at writing, and it is even scarcer for Dual Language Learners (National Early Literacy Panel, 2008, as cited in Gillanders et al., 2017). However, some core ideas regarding early writing skills could be

gathered in the current review. Indeed, emergent writing skills are frequently assessed by means of activities that measure name writing which is further explained below.

### ***Name writing***

In a study conducted by Puranik and Lonigan (2012b, as cited in Diamond et al., 2013) in early childhood, it was found that the ability of children to appropriately write their names held a relation with other decoding skills. By writing their names, children can practice the directionality of texts (Bloodgood, 1999; Aram & Biron, 2004, as cited in Diamond et al., 2013), and as writing their own names is significant for children, they are unlikely to be forgotten (Tolchinsky, 2006, as cited in Diamond et al., 2013). Likewise, there are reasons to state that writing one's name enables awareness regarding the sounds of the letters (Both-de Vries & Bus, 2010, as cited in Diamond et al., 2013). However, the authors have pointed out that by writing their names, children do not strictly have to know how the letters are called (Drouin & Harmon, 2009, as cited in Diamond et al., 2013). Therefore, it is of high importance not to generalize about this topic and be aware enough to identify when the writing of children's own names really involves writing skills or just mechanic repetition. This type of assessment is performed by asking the child to write his/her name on a worksheet and then analyzing the quality of the writing (spelling, deviations, etc.), or by asking children to write their names, and then, asking them to read what they wrote while signaling by themselves with their fingers.

All in all, there is evidence to assert that the assessment of writing skills in early childhood bilingual education is fundamental as it may predict literacy skills, and guide teaching practices and the promotion of this skill. This is especially important since the development of early literacy highly affects academic success. Nevertheless, it must be noted that information regarding the assessment of writing skills at an early age is limited due to the obvious challenges it may represent to assess the writing of children whose literacy skills are

not fully developed. Thus, what is presented in the current study are just some highlights of what could be gathered in terms of literature. Similarly, it is not feasible to talk about tendencies in terms of the instruments used or the preferable writing assessment practices. Hence, these highlights are exposed to emphasize the gap of research on this topic and the need of investigating and finding the most suitable option to measure this ability at an early age in bilingual children.

## **Chapter 4. Assessment of Narrative Abilities**

According to Mäkinen et al. (2020), narration is an ability that requires the use of different aspects at the same time such as cultural, pragmatical, and linguistic elements. This ability arises in children at about 2 or 3 years of age and helps them understand their experiences (Temiz, 2019). For some authors, the narrative abilities at an early age are of considerable help to identify literacy-like skills such as reading or writing (Wellman et al., 2011, as cited in Spencer et al., 2015) or language development in general in a specific context (Mäkinen et al., 2020). Besides, narrative abilities are considered to play a significant role in subsequent academic success. (Gagarina et al., 2016 as cited in Temiz, 2019).

### **Measures of narrative abilities**

As Malloy (2020) asseverates, narrative assessments are intended to measure people's capacity to narrate stories in past, present, or future, considering the sequence of events and the context. Therefore, these measures are considered to be a "more contextualized view of children's language skill" (Botting, 2002, as cited in Malloy, 2020, p. 2). With regards to this, some narrative analyses are done in order to elicit children's narrative production, and others are done to test their capacity to recall and retell stories. Additionally, two levels guide the analyses of narrative abilities with different functionalities, and they are the global and the local perspectives. The microlevel or local perspective is used to assess language abilities in general, and the global perspective or macrolevel approaches the analysis of narrative from the content itself and the sequence of the narrative for which story grammars are commonly used (Hickmann, 2003, as cited in Mäkinen et al., 2020).

In spite of the widely accepted position narrative enjoys, there is no much literature that approaches the concern of bilingual infants' development of narrative abilities (Montanari, 2004). Consequently, only 22,4% of the articles gathered in the current study addressed the assessment of narrative skills. Nonetheless, some studies were categorized and

analyzed within the current review to be able to understand what has been done in this field. The tendencies in terms of assessment instruments among the articles analyzed are presented in table 6.

**Table 6**

*Ranking of tools that measure narrative abilities*

| Assessment instrument                             | Version   | Frequency of usage among the studies found |
|---|---|--|
| Narrative elicitations through Frog stories       | Frog, where are you?" (Mayer, 1969, as cited in Heilmann et al., 2015; Montanari, 2004; Rojas & Iglesias, 2013; Temiz, 2019)<br>Frog Goes to Dinner (Mayer, 1974, as cited in Rojas & Iglesias, 2013)<br>Frog on His Own (Mayer, 1975a, as cited in Rojas & Iglesias, 2013)<br>One Frog Too Many (Mayer, 1975b, as cited in Rojas & Iglesias, 2013) | 23,5%                                      |
| Multilingual Assessment Instrument for Narratives | Multilingual Assessment Instrument for Narratives (MAIN; Gagarina et al., 2012, as cited in Grøver et al., 2020; Malloy, 2020; Otwinowska et al., 2020; Rodina, 2017)<br>Multilingual Assessment Instrument for Narratives (Polish version; Kiebzak-  | 23,5%                                      |

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|  |   |      |
|--|---|------|
|  | Mandera et al., 2012 as cited in<br>Otwinowska et al., 2020)  |      |
| The Narrative Language<br>Measures: Preschool        | The Narrative Language Measures:<br>Preschool (NLM:P; Petersen and<br>Spencer, 2012, as cited in Spencer et al.,<br>2015)   | 5,9% |
| Goralnik Screening Test for<br>Hebrew                | Goralnik Screening Test for Hebrew<br>(Goralnik, 1995, as cited in Kupersmitt<br>& Armon-Lotem, 2019)   | 5,9% |
| TNR Spencer  | TNR Spencer (Spencer & Petersen,<br>2011, as cited in Spencer et al., 2017)   | 5,9% |
| Narrative elicitation using The<br>Renfrew Bus Story | Narrative elicitation using The<br>Renfrew Bus Story (Cowley & Glasgow,<br>1994, as cited in Hipfner-Boucher et al.,<br>2015)   | 5,9% |
| HUG narrative test                                   | HUG narrative test using Hug wordless<br>book (HUG; Alborough, 2002, as cited<br>in Grøver et al., 2020)  | 5,9% |
| Edmonton Narrative Norms<br>Instrument               | Edmonton Narrative Norms<br>Instrument (ENNI; Schneider et al.,<br>2002, as cited in Sénéchal et al., 2008)<br>Edmonton Narrative Norms Instrument<br>(ENNI; Schneider et al., 2005, as cited in<br>Mäkinen et al., 2020) | 5,9% |

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|   |   |      |
|---|---|------|
| Narrative task                                | Narrative task (Adaptation; Purcell-Gates, 1988 as cited in Sénéchal et al., 2008)                    | 5,9% |
| Test of Narrative Language                    | Test of Narrative Language (Adaptation; Gillam & Pearson, 2004 as cited in Nicolopoulou et al., 2015) | 5,9% |
| Narrative elicitation using animated cartoons | Narrative elicitation using animated cartoons (Gámez & González, 2019)                                | 5,9% |

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**Source:** own

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*Note.* This table contains the tendencies in terms of assessment of oral skills and their frequency among the articles found. The different versions of the tests found in the articles were listed. However, all of the versions of the same test were counted as one. The most remarkable options were the Narrative elicitations through Frog stories and the MAIN which are explored below.

### ***Narrative elicitations through Frog stories***

Mercer Mayer wrote a series of wordless picture storybooks (Mayer, 1967, 1969, 1971, 1974, 1975a, 1975b, as cited in Heilmann et al., 2015) in which different scenes are presented in sequential order. Therefore, it is the narrator (the child) who states the details of the story such as characters or settings (Temiz, 2019). In the case of the story, “Frog, where are you?”, the book depicts the story of a male child who, along with his dog, starts looking for his lost frog. Along the way, they find different obstacles, but they do not stop their search (Temiz, 2019). The Frog stories do not represent assessment instruments themselves; in fact, they are commonly implemented along with any kind of assessment procedure. Consequently, the literature reviewed in the current study approached the assessment of narrative skills by using the Frog stories and the following assessment procedures (one procedure for each study):

- Analysis of story grammar components based on Labov's definition (Temiz, 2019).

Story grammar components are founded on the premise that stories are made of episodes, and in accordance to Labov (1972, as cited in Temiz, 2019), stories are composed of more elements than just the so-known beginning, middle, and end.

- "Narrative scoring system" based on Halliday's Ideational, Interpersonal, and Textual functions (Halliday, 1970, p.143, as cited in Montanari, 2004, p. 455)
- "The narrative language elicitation protocol" (Rojas et al., 2013, p. 634)
- "Language sample analysis" (Heilmann et al., 2015, p. 1)

**Two studies in which the Frog stories were used to elicit narrative abilities.** In a research project conducted in Los Angeles, the narrative abilities of three Spanish-speaking bilingual children (5;4, 5;6, and 5;8 years old) were analyzed, being Spanish their mother tongue and English their second language which was acquired at 3 or 4 years old (Montanari, 2004). The wordless book *Frog, where are you?* (Mayer, 1969, as cited in Montanari, 2004) was used to elicit children's narratives, and those abilities were elicited twice with a span of 6 months between them. Then, the transcriptions were written and reviewed by the authors who were Spanish or English native speakers. Besides, a narrative scoring system was developed for the study following Halliday's ideational, interpersonal, and textual functions of language. The Interpersonal function was used to measure how children performed their role as narrators. The Ideational Function was considered when assessing children's capacity to organize the events of the story. Finally, the Textual function was utilized to observe whether "cohesion and temporal perspective" was properly used by the child (Montanari, 2004, p. 455).

Moreover, in a study conducted by Rojas & Iglesias (2013), the language growth trajectories of 1.723 English language learners were observed. Children's mean age at the beginning of the study was 5 years and 7 months. A series of the Frog stories were used to

elicit narratives from children, who were asked to retell the story in English and Spanish. In addition, the “narrative language elicitation protocol” (Rojas & Iglesias 2013, p.634) was implemented, which determined that the child would seat across the researcher, who told the story while the child observed the book. Then, the child would be asked to retell the story. After that, the narrative elicitations would be recorded and transcribed by trained Spanish-English bilingual transcribers.

The previously mentioned studies depict two different processes to assess narrative language by using the same series of wordless books. The study conducted by Montanari (2004), attempted to elicit children’s narrative production, and the second one (Rojas & Iglesias, 2013) approached the analysis from children’s narrative retelling capacity. Nonetheless, both make evident the same issue and that is the age since they are conducted with children no younger than 5 years old. Indeed, narrative skills start to develop at 3 or 4 years old (Temiz, 2019), but we could not find much literature where narrative ability is measured since such an early age. It is important to consider then the gap in this aspect and promote the intervention and assessment in terms of narrative skills since as Montanari (2004) asserts, this is an essential ability in human life, and as so, it is of high importance at the educational field.

**Benefits of eliciting narrative skills through Frog stories.** These books have been widely used in cross-linguistic studies due to its lack of written language and complete/rich context (Berman & Slobin, 1994, as cited in Reilly et al., 2004). Besides, Frog stories have proved to be nonbiased and appropriate for narrative elicitation tasks for learners who come from different backgrounds including Spanish speakers (Rojas & Iglesias, 2013). Similarly, being wordless books, they open the door for the examiner to control the content of the narrative task (Bamberg, 1987; Berman & Slobin, 1994; Silva-Corvalán, 1998, as cited in Montanari, 2004).

**Limitations of the Elicitation of narratives through Frog Stories.** Frog stories do not include a control experimental procedure (Rodina, 2017). This makes it imperative to use an assessment procedure along with them. Besides, to our knowledge, they have not been normed as an assessment instrument to elicit narrative skills, and therefore, their psychometric properties are unknown.

**Applicability of the Elicitation of narratives through Frog Stories in the *Centros de Desarrollo Infantil*.** The frog stories can be certainly implemented in contexts such as the *Centros de Desarrollo Infantil*. Nonetheless, there is a need of studying children's responses to them in a context like this. In addition, if a narrative assessment is implemented, proper intervention is needed to promote the development of narrative abilities. Furthermore, there is a necessity to train teachers/practitioners to interpret children's narratives in terms of their macro and micro levels to be able to identify if there is a delay or need in terms of content or the language itself.

### ***Multilingual Assessment Instrument for Narratives***

The MAIN (Gagarina et al., 2012) is an instrument used to assess the comprehension and production of narratives in children, especially for those who acquire one or more languages since they are born or at an early age. It was designed to elicit narratives using different modes: "Model story, Telling, and Retelling" (p. 1), and it provides four picture stories Cat, Dog, Baby Birds, and Baby Goats of three episodes each. Besides these, the guidelines and procedures for the assessment of narrative abilities are provided.

**Two studies in which the MAIN was used.** In a study conducted by Rodina (2017), the initial development of narrative abilities was analyzed in both languages of Norwegian-Russian simultaneous bilinguals. The research aimed to determine whether the macrostructure and microstructure of narratives were language-dependent abilities. The

participants of the study were 4,5 and 4,6 years old and were either bilingual or monolingual preschool students. The assessment was conducted starting with the comprehension task, in which children listened to a story while they were shown a set of pictures, and then, they were asked ten comprehension questions. After that, the production task started, and children were encouraged to choose an envelope with some pictures and tell the story themselves. The narratives were transcribed orthographically by Russian and Norwegian native speakers, and they were scored by the author and other independent researchers.

Similarly, Otwinowska et al. (2020), studied the effect of model stories in the narratives of Polish-English bilingual children (mean age 5;7) in the UK. The process involved telling stories and retelling of stories by children. Children were tested with a battery of tests of language and cognitive knowledge, including the MAIN (Gagarina et al. 2012, as cited in Otwinowska et al., 2020), and they were assessed during 5-7 sessions (bilinguals) and 3-4 sessions (monolinguals), individually, in a quiet room, and by a proficient speaker of the given language. In this study, retelling stories were found to be beneficial for the development of narrative skills of bilingual children.

The above-mentioned studies show interesting examples of how the MAIN can serve to assess narrative skills in bilingual children. The assessment is not conducted yet with younger children, which means that this ability is not assessed in a continuum, rather it is conducted when children are near school age. Besides, the practicality of the procedures is still compromised since it is not very feasible that in a large classroom, teachers would be able to conduct assessments individually and in a quiet room.

**Benefits of using the MAIN.** The MAIN is specially designed, among others, for bilingual preschoolers (Gagarina et al., 2012, 2015, as cited in Rodina, 2017) in the two languages of bilingual infants, something which makes it a valuable and innovative tool in

this field. Furthermore, it is appropriate for different contexts, and for assessing different elements of language (cf. Gagarina et al., 2016, p. 12, as cited in Rodina, 2017), and its stories are parallel (Gagarina et al., 2016; Pesco & Kay-Raining Bird, 2016, as cited in Rodina, 2017). Besides, the provided experimental procedures allow comparing the languages of children, something which is appreciable when children are acquiring two languages at an early age. Besides, according to Gagarina et al. (2012), the MAIN has been administered to children in 17 languages, and it is possible to adapt it to other languages. Finally, the piloting of this instrument has been conducted in 15 cultural and linguistic backgrounds with monolingual and bilingual infants (Gagarina et al., 2016, as cited in Malloy, 2020).

**Limitations of MAIN.** Even though this instrument has been piloted among a great set of cultures, to our knowledge, it has not been normed, which means its psychometric properties are still unknown. However, it is an appreciable resource that deserves research in order to determine the effects of its implementation to assess younger children since their narrative abilities start to develop and in a continuum.

**Applicability of the MAIN in the *Centros de Desarrollo Infantil*.** The MAIN may represent an important resource to measure children's early narrative skills as it was designed to be used with speakers of different languages, and one of its focuses is the early bilingual infancy. In addition to this, the detailed inclusion of guidelines to conduct the assessment practices is likely to add reliability to its administration. Therefore, it could make a proper assessment instrument for early childhood bilingualism in *Centros de Desarrollo Infantil*. Nonetheless, further research is needed to guarantee basic assessment principles such as reliability or practicality in this context.

**Final considerations when assessing narrative abilities**

It is imperative to highlight once more the importance of narrative skills in the process of acquiring a language as children should be able to do more with a language than just coding and decoding the formal aspects of it. Rather, they should be able to decode the language and handle its functions in communication (Montanari, 2004). Besides, educative agents should understand that even though some aspects of narratives such as the macrostructure are somehow conceived as universal across languages, the oral productive skills are not transferrable between languages and are impacted by exposure (Rodina, 2017). Thus, the promotion of teaching activities that boost the development of narrative skills such as group story readings or retelling activities is of high significance. Additionally, there is a need for the inclusion of narrative-like activities in large classrooms, for which there is no evidence of the effects of the intervention.

### **Limitations**

This study represents a systematic review of literature which findings depict proper exemplifications of how some abilities are assessed in early childhood bilingual education and the instruments used to achieve this. Nonetheless, some limitations should be noted. When gathering the documents, the drawbacks that somehow hindered the literature analyses were the lack of access to literature from Spanish-speaking countries, the time available to perform the systematic review, and the lack of studies that focus on the assessment instruments themselves.

First, it is unfortunate that there was no possibility to gather and analyze research regarding early childhood bilingual assessment in Spanish-speaking countries. This might be caused by many reasons, and one of them is that the free access to literature offered by Universidad Tecnológica de Pereira to its students does not include many impactful journals in the area of educational assessment in early childhood in Spanish-speaking countries. Additionally, the journals (in Spanish) that could be freely accessed were not effective in retrieving studies that fit the aim of the current review, or the data browser of those journals was not appropriately designed so as to retrieve filtered and useful information. Nonetheless, the most unfortunate but likely scenario is that there is no much literature from Spanish-speaking countries that approaches the assessment of early childhood bilingual assessment.

Moreover, the time constraints represented a limiting factor to investigate deeply on the topics and gather information of studies performed in different regions of the world. Therefore, we suggest that the assessment of the different aspects of bilingualism in early infancy is researched in depth in future studies so as to have a wider scope of the instruments or options available when it comes to assessing bilingualism at an early age.

Finally, an inconvenient to obtain first-hand information regarding the assessment tools analyzed was that the literature did not usually focus on the measurement or analysis of



the instruments themselves. Rather, the studies found were actually trying to identify or demonstrate other aspects of bilingualism and used the assessment instruments just to corroborate their hypotheses.

## Conclusions

The main objective of this literature review was to identify how bilingualism in early infancy is assessed in different parts of the world and the instruments used to do it in order to give theoretical support for the assessment of bilingual education in *Centros de Atención Infantil in Pereira*. Therefore, the main contribution of this study is the information gathered and characterized regarding the aspects that were trendier when measuring bilingualism in the early stages of life, and some common assessment instruments found. Additionally, the conclusions we could draw regarding the appropriateness of those instruments if being implemented in the *Centros de Atención Infantil* are considered as pertinent contributions in this regard. The interpretations we made are the result of the gathering of data available regarding the assessment of bilingualism in early childhood and the further analysis of that data. Hence, the conclusions of the current literature review are explained as follows.

We found that the assessment of bilingualism in the early infancy is more common in countries where immigration is a highly frequent issue. Conversely, there are some countries that despite claiming their commitment to promote bilingualism do not approach its assessment by using systematic or clear assessment instruments, or they do not make that information so accessible. It is important to highlight then that the spectrum of this review is limited somehow to the instruments used just in a few countries that do measure bilingualism in the early stages of life and whose information we could access. Unfortunately, we could not find information from other countries such as many Spanish-speaking ones which makes it complex to establish comparisons or know how bilingualism is assessed in the closest regions.

Additionally, it is imperative to mention that vocabulary knowledge seems to play a critical role in assessing language since the measurement of this aspect was the trendiest, being present in most of the studies even if it was not the focus of them. On the contrary,

other aspects of bilingualism such as pre-reading or pre-writing skills were poorly measured or not measured at all within the literature reviewed. This may be due to obvious reasons such as the challenge it may represent to assess literacy skills in children who are just becoming literate.

On the other hand, in terms of tendencies, this study gathered information regarding a set of instruments used to assess different aspects of bilingualism in early childhood. In the case of vocabulary knowledge, authors preferred the Picture Peabody Vocabulary Test (PPVT), the MacArthur Bates Communicative Development Inventory (CDI), and the Expressive One Word Picture Vocabulary Test (EOWPVT). In terms of assessment of pre-reading skills, some of the trendiest instruments were the Phonological awareness: Screening Instrument for Early Literacy (PALS-PreK), the Woodcock-Johnson III instrument, and the Get ready to read (GRTR). Similarly, when assessing narrative skills, the researchers opted to perform narrative elicitations through the wordless books by Mayer, the Multilingual Assessment Instrument for Narratives (MAIN), and the Woodcock Language Muñoz Survey-revised (WMLS-R). However, educators in the *Centros de Atención Infantil* should be cautious if one of these instruments are implemented as exhaustive research, piloting, and norming are still needed.

Finally, it is of high relevance to start the research regarding the assessment of bilingualism in the *Centros de Atención Infantil* from an empirical perspective that allows drawing conclusions regarding the most efficient and proper ways to measure the development of bilingualism in children in this scenario. It is recommended under these alignments that the Expressive One Word Picture Vocabulary Test along with the Receptive One Word Picture Vocabulary Test could be explored in the *Centros de Atención Infantil* to assess vocabulary knowledge in both English and Spanish by piloting and adapting the vocabulary used to the needs of this population. In terms of pre-reading skills, the instruments

found had different drawbacks if being implemented in *Centros de Atención Infantil*.

However, the PALS-Pre-K could be an option to measure 4-years-old, and some adaptations could be done in order to start measuring this aspect in a continuum. Finally, when it comes to assessing narrative skills, the MAIN may represent a pertinent resource, but it is important to highlight that if children's narrative skills are assessed, they should be intervened with activities that involve the development of such skills. If implementing these instruments, meaningfulness and fairness are a must, and children should be assessed considering the most frequent vocabulary they are exposed to, the relation of that vocabulary to their background and needs, and the amount of intervention they received.

### **Pedagogical implications**

Even though the aim of this systematic review was to identify some appropriate instruments to measure bilingualism in early childhood, some teaching practices are inherently connected to whether an instrument is properly and fairly implemented. For that reason, we identified and propose some pedagogical practices that could boost the development of bilingualism in the early years and contribute to the success of the assessment practices.

In terms of narrative skills, it is of high relevance the promotion of activities that contribute to the development of these abilities such as group story readings or retelling activities. This is especially important to develop not only narrative skills but also different aspects of bilingualism. In this case, narrative activities help children to sound words and develop their vocabulary knowledge and early literacy skills not to mention the boost on social skills, imagination, and creativity. The quality and the frequency of those activities should be considered as well to guarantee a meaningful process in which children develop all these abilities in a continuum, starting by being read some stories and progressively going to a stage in which they read images and text by themselves.

On the other hand, vocabulary knowledge can be promoted through narrative activities as mentioned above and through activities in which children identify and then name objects and images. Additionally, activities in which children get to sort objects according to their characteristics or functionality are recommendable. It is of high relevance that children are constantly exposed to high-frequent and meaningful words which they can encounter in their surroundings and progressively add them to their repertoire. Furthermore, teachers should promote word-consciousness through songs and games in which the words are used in context.

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## Appendix A.

### Number of articles downloaded per database or journal

The following tables include the databases used for the search, journals, keywords, results of search, downloads, and total articles downloaded per journal after applying all the filters and selection criteria. The articles written in Spanish were not sought considering a database as we did not have access to many databases in Spanish. Rather, research was conducted considering different Spanish-speaking countries or regions. The title of each table refers to the database from which the articles were searched. Each heading from the table is explained as follows:

- “Keywords” refers to the language used as input to search the different journals.
- “Results” means the number of documents showed in total by the different journals after entering a specific keyword.
- “Downloads” is the number of total articles downloaded after applying the Inclusion criteria checklist per each keyword cluster.
- “Total” is ...

**Table A1**

*Articles out of databases*

| Journal           | Keywords  | Results | Downloads | Total |
|-------------------|---|---------|-----------|-------|
| Child Development | Assessment of bilingual in early childhood        | 237     | 0         | 4     |
|                   | Assessment of bilingual in early infancy          | 124     | 2         |       |
|                   | Assessment of bilingual in the early years        | 3       | 1         |       |
|                   | Instrument to assess bilingual in early childhood | 1       | 1         |       |

|                                |   |    |   |   |
|--------------------------------|---|----|---|---|
| Child Development Perspectives | Assessment of bilingual in early childhood        | 19 | 1 | 1 |
|                                | Assessment of bilingual in early infancy          | 10 | 0 |   |
|                                | Assessment of bilingual in the early years        | 1  | 0 |   |
|                                | Instrument to assess bilingual in early childhood | 3  | 0 |   |
| HOW                            | Assessment of bilingual in early childhood        | 2  | 0 | 0 |
|                                | Assessment of bilingual in early infancy          | 2  | 0 |   |
|                                | Assessment of bilingual in the early years        | 12 | 0 |   |
|                                | Instrument to assess bilingual in early childhood | 3  | 0 |   |

**Source:** own

**Table A2**

*SAGE Database*

| Journal                                | Keywords  | Results | Downloads | Total |
|--|---|---------|-----------|-------|
| Contemporary Issues in Early Childhood | Assessment of bilingual in early childhood        | 48      | 0         | 0     |
|  | Assessment of bilingual in early infancy          | 9       | 0         |       |
|  | Assessment of bilingual in the early years        | 46      | 0         |       |
|  | Instrument to assess bilingual in early childhood | 12      | 0         |       |
| Childhood                              | Assessment of bilingual in early childhood        | 10      | 0         | 0     |
|  | Assessment of bilingual in early infancy          | 1       | 0         |       |

|  |   |     |   |   |
|--|---|-----|---|---|
|  | Assessment of bilingual in the early years        | 9   | 0 |   |
|  | Instrument to assess bilingual in early childhood | 3   | 0 |   |
| Assessment for Effective Intervention        | Assessment of bilingual in early childhood        | 34  | 2 | 6 |
|  | Assessment of bilingual in early infancy          | 4   | 1 |   |
|  | Assessment of bilingual in the early years        | 29  | 2 |   |
|  | Instrument to assess bilingual in early childhood | 22  | 1 |   |
| Educational and Psychological Measurement    | Assessment of bilingual in early childhood        | 10  | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 4   | 0 |   |
|  | Assessment of bilingual in the early years        | 13  | 0 |   |
|  | Instrument to assess bilingual in early childhood | 10  | 0 |   |
| American Educational Research Journal: 118-0 | Assessment of bilingual in early childhood        | 118 | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 9   | 0 |   |
|  | Assessment of bilingual in the early years        | 113 | 0 |   |
|  | Instrument to assess bilingual in early childhood | 46  | 0 |   |
| Language Teaching Research                   | Assessment of bilingual in early childhood        | 60  | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 6   | 0 |   |

|                                       |   |     |   |    |
|---------------------------------------|---|-----|---|----|
|                                       | Assessment of bilingual in the early years        | 71  | 0 |    |
|                                       | Instrument to assess bilingual in early childhood | 21  | 0 |    |
| Language Testing                      | Assessment of bilingual in early childhood        | 56  | 0 | 1  |
|                                       | Assessment of bilingual in early infancy          | 7   | 0 |    |
|                                       | Assessment of bilingual in the early years        | 70  | 0 |    |
|                                       | Instrument to assess bilingual in early childhood | 34  | 1 |    |
| Word of Mouth                         | Assessment of bilingual in early childhood        | 29  | 2 | 3  |
|                                       | Assessment of bilingual in early infancy          | 19  | 0 |    |
|                                       | Assessment of bilingual in the early years        | 28  | 1 |    |
|                                       | Instrument to assess bilingual in early childhood | 12  | 0 |    |
| International Journal of Bilingualism | Assessment of bilingual in early childhood        | 332 | 8 | 20 |
|                                       | Assessment of bilingual in early infancy          | 63  | 7 |    |
|                                       | Assessment of bilingual in the early years        | 1   | 0 |    |
|                                       | Instrument to assess bilingual in early childhood | 94  | 5 |    |
| First Language                        | Assessment of bilingual in early childhood        | 103 | 2 | 8  |
|                                       | Assessment of bilingual in early infancy          | 43  | 0 |    |

|   |   |    |   |   |
|---|---|----|---|---|
|   | Assessment of bilingual in the early years        | 89 | 5 |   |
|   | Instrument to assess bilingual in early childhood | 28 | 1 |   |
| Journal of Early Childhood Intervention | Assessment of bilingual in early childhood        | 32 | 1 | 8 |
|   | Assessment of bilingual in early infancy          | 22 | 3 |   |
|   | Assessment of bilingual in the early years        | 26 | 1 |   |
|   | Instrument to assess bilingual in early childhood | 17 | 1 |   |
| Journal of Early Childhood Research     | Assessment of bilingual in early childhood        | 26 | 2 | 4 |
|   | Assessment of bilingual in early infancy          | 3  | 0 |   |
|   | Assessment of bilingual in the early years        | 25 | 0 |   |
|   | Instrument to assess bilingual in early childhood | 16 | 2 |   |

Source: own

**Table A3**

*Taylor & Francis Online*

| Journal   | Keywords  | Results | Downloads | Total |
|---|---|---------|-----------|-------|
| International Journal of Bilingual Education and Bilingualism | Assessment of bilingual in early childhood        | 583     | 7         | 15    |
|   | Assessment of bilingual in early infancy          | 71      | 2         |       |
|   | Assessment of bilingual in the early years        | 328     | 6         |       |
|   | Instrument to assess bilingual in early childhood | 95      | 0         |       |

|  |  |     |   |    |
|--|--|-----|---|----|
| European<br>Early<br>Childhood<br>Education<br>Research<br>Journal | Assessment of bilingual in early<br>childhood        | 36  | 0 | 0  |
|  | Assessment of bilingual in early<br>infancy          | 5   | 0 |    |
|  | Assessment of bilingual in the early<br>years        | 36  | 0 |    |
|  | Instrument to assess bilingual in<br>early childhood | 14  | 0 |    |
| International<br>Multilingual<br>Research<br>Journal               | Assessment of bilingual in early<br>childhood        | 82  | 0 | 1  |
|  | Assessment of bilingual in early<br>infancy          | 6   | 0 |    |
|  | Assessment of bilingual in the early<br>years        | 80  | 0 |    |
|  | Instrument to assess bilingual in<br>early childhood | 20  | 1 |    |
| Language<br>Assessment<br>Quarterly                                | Assessment of bilingual in early<br>childhood        | 42  | 1 | 3  |
|  | Assessment of bilingual in early<br>infancy          | 0   | 0 |    |
|  | Assessment of bilingual in the early<br>years        | 52  | 2 |    |
|  | Instrument to assess bilingual in<br>early childhood | 25  | 0 |    |
| Early<br>Education and<br>Development                              | Assessment of bilingual in early<br>childhood        | 147 | 3 | 17 |
|  | Assessment of bilingual in early<br>infancy          | 47  | 4 |    |
|  | Assessment of bilingual in the early<br>years        | 139 | 3 |    |
|  | Instrument to assess bilingual in<br>early childhood | 70  | 7 |    |

|   |  |     |   |    |
|---|--|-----|---|----|
| Educational<br>Assessment                               | Assessment of bilingual in early<br>childhood        | 16  | 0 | 1  |
|   | Assessment of bilingual in early<br>infancy          | 0   | 0 |    |
|   | Assessment of bilingual in the early<br>years        | 19  | 0 |    |
|   | Instrument to assess bilingual in<br>early childhood | 10  | 1 |    |
| Early Child<br>Development<br>and Care                  | Assessment of bilingual in early<br>childhood        | 197 | 5 | 17 |
|   | Assessment of bilingual in early<br>infancy          | 58  | 1 |    |
|   | Assessment of bilingual in the early<br>years        | 156 | 7 |    |
|   | Instrument to assess bilingual in<br>early childhood | 73  | 4 |    |
| International<br>Journal of<br>Early Years<br>Education | Assessment of bilingual in early<br>childhood        | 56  | 1 | 2  |
|   | Assessment of bilingual in early<br>infancy          | 16  | 0 |    |
|   | Assessment of bilingual in the early<br>years        | 52  | 0 |    |
|   | Instrument to assess bilingual in<br>early childhood | 19  | 1 |    |
| Early Years   | Assessment of bilingual in early<br>childhood        | 100 | 2 | 2  |
|   | Assessment of bilingual in early<br>infancy          | 5   | 0 |    |
|   | Assessment of bilingual in the early<br>years        | 40  | 0 |    |
|   | Instrument to assess bilingual in<br>early childhood | 12  | 0 |    |

|  |   |     |   |   |
|--|---|-----|---|---|
| Assessment in Education:                           | Assessment of bilingual in early childhood        | 18  | 0 | 0 |
| Principles, Policies & Practices                   | Assessment of bilingual in early infancy          | 3   | 0 |   |
|  | Assessment of bilingual in the early years        | 15  | 0 |   |
|  | Instrument to assess bilingual in early childhood | 8   | 0 |   |
| Cambridge Journal of Education                     | Assessment of bilingual in early childhood        | 26  | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 2   | 0 |   |
|  | Assessment of bilingual in the early years        | 27  | 0 |   |
|  | Instrument to assess bilingual in early childhood | 8   | 0 |   |
| Journal for the Study of Education and Development | Assessment of bilingual in early childhood        | 8   | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 2   | 0 |   |
|  | Assessment of bilingual in the early years        | 6   | 0 |   |
|  | Instrument to assess bilingual in early childhood | 4   | 0 |   |
| Innovation in Language Learning and Teaching       | Assessment of bilingual in early childhood        | 62  | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 13  | 0 |   |
|  | Assessment of bilingual in the early years        | 129 | 0 |   |
|  | Instrument to assess bilingual in early childhood | 29  | 0 |   |



|  |   |    |   |   |
|--|---|----|---|---|
| Educational Research                             | Assessment of bilingual in early childhood        | 18 | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 3  | 0 |   |
|  | Assessment of bilingual in the early years        | 20 | 0 |   |
|  | Instrument to assess bilingual in early childhood | 4  | 0 |   |
| Childhood Education                              | Assessment of bilingual in early childhood        | 74 | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 23 | 0 |   |
|  | Assessment of bilingual in the early years        | 55 | 0 |   |
|  | Instrument to assess bilingual in early childhood | 17 | 0 |   |
| Journal of Research in Childhood Education       | Assessment of bilingual in early childhood        | 63 | 0 | 7 |
|  | Assessment of bilingual in early infancy          | 18 | 1 |   |
|  | Assessment of bilingual in the early years        | 64 | 2 |   |
|  | Instrument to assess bilingual in early childhood | 34 | 4 |   |
| Journal of Research on Educational Effectiveness | Assessment of bilingual in early childhood        | 16 | 0 | 0 |
|  | Assessment of bilingual in early infancy          | 2  | 0 |   |
|  | Assessment of bilingual in the early years        | 17 | 0 |   |
|  | Instrument to assess bilingual in early childhood | 9  | 0 |   |

|                               |   |     |   |   |
|-------------------------------|---|-----|---|---|
| The Language Learning Journal | Assessment of bilingual in early childhood        | 239 | 0 | 0 |
|                               | Assessment of bilingual in early infancy          | 14  | 0 |   |
|                               | Assessment of bilingual in the early years        | 349 | 0 |   |
|                               | Instrument to assess bilingual in early childhood | 91  | 0 |   |
| Language and education        | Assessment of bilingual in early childhood        | 351 | 0 | 1 |
|                               | Assessment of bilingual in early infancy          | 30  | 0 |   |
|                               | Assessment of bilingual in the early years        | 357 | 0 |   |
|                               | Instrument to assess bilingual in early childhood | 105 | 1 |   |

**Source:** own

**Table A4**

*Springer Open*

| Journal                       | Keywords  | Results | Downloads | Total |
|-------------------------------|---|---------|-----------|-------|
| International Journal of      | Assessment of bilingual in early childhood        | 3       | 0         | 1     |
| Child Care and Education      | Assessment of bilingual in early infancy          | 1       | 0         |       |
| Policy                        | Assessment of bilingual in the early years        | 3       | 1         |       |
|                               | Instrument to assess bilingual in early childhood | 3       | 0         |       |
| Educational Assessment,       | Assessment of bilingual in early childhood        | 1       | 0         | 0     |
| Evaluation and Accountability | Assessment of bilingual in early infancy          | 0       | 0         |       |

|   |   |   |
|---|---|---|
| Assessment of bilingual in the early years        | 1 | 0 |
| Instrument to assess bilingual in early childhood | 2 | 0 |

**Source:** own

**Table A5**

*ScienceDirect*

| <b>Journal</b>                     | <b>Keywords</b>                                   | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|------------------------------------|---|----------------|------------------|--------------|
| Early Childhood Research Quarterly | Assessment of bilingual in early childhood        | 4              | 1                | 19           |
|                                    | Assessment of bilingual in early infancy          | 1              | 0                |              |
|                                    | Assessment of bilingual in the early years        | 4              | 1                |              |
|                                    | Instrument to assess bilingual in early childhood | 82             | 17               |              |
| Children and Youth Services Review | Assessment of bilingual in early childhood        | 3              | 0                | 0            |
|                                    | Assessment of bilingual in early infancy          | 3              | 0                |              |
|                                    | Assessment of bilingual in the early years        | 5              | 0                |              |
|                                    | Instrument to assess bilingual in early childhood | 22             | 0                |              |

**Source:** own

**Table A6***Scopus*

| <b>Journal</b> | <b>Keywords</b>                                   | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|----------------|---|----------------|------------------|--------------|
| Íkala          | Assessment of bilingual in early childhood        | 1              | 0                | 0            |
|                | Assessment of bilingual in early infancy          | 0              | 0                |              |
|                | Assessment of bilingual in the early years        | 5              | 0                |              |
|                | Instrument to assess bilingual in early childhood | 0              | 0                |              |

**Source:** own**Table A7***JSTOR*

| <b>Journal</b>         | <b>Key words</b>                                  | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|------------------------|---|----------------|------------------|--------------|
| Child Development      | Assessment of bilingual in early childhood        | 87             | 3                | 6            |
|                        | Assessment of bilingual in early infancy          | 44             | 0                |              |
|                        | Assessment of bilingual in the early years        | 108            | 2                |              |
|                        | Instrument to assess bilingual in early childhood | 18             | 1                |              |
| Educational Researcher | Assessment of bilingual in early childhood        | 147            | 0                | 0            |
|                        | Assessment of bilingual in early infancy          | 7              | 0                |              |
|                        | Assessment of bilingual in the early years        | 205            | 0                |              |
|                        | Instrument to assess bilingual in early childhood | 8              | 0                |              |

**Source:** own

**Table A8**

*Journals with contributions from Latin-America, Central America, and other Spanish-speaking regions*

| <b>Journal</b>                                      | <b>Keywords</b>                                   | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|---|---|----------------|------------------|--------------|
| Revista Internacional de Lenguas Extranjeras        | Evaluación o bilingüismo o primera infancia       | 0              | 0                | 0            |
|   | Evaluación o bilingüismo o primeros años          | 5              | 0                |              |
|   | Evaluación o bilingüismo o edad temprana          | 5              | 0                |              |
|   | Evaluación o lengua extranjera o primera infancia | 5              | 0                |              |
|   | Evaluación o lengua extranjera o primeros años    | 5              | 0                |              |
|   | Evaluación o lengua extranjera o edad temprana    | 5              | 0                |              |
|   |   |                |                  |              |
| Revista Caribeña de Investigación Educativa (RECIE) | Evaluación o bilingüismo o primera infancia       | 1              | 0                | 0            |
|   | Evaluación o bilingüismo o primeros años          | 6              | 0                |              |
|   | Evaluación o bilingüismo o edad temprana          | 2              | 0                |              |
|   | Evaluación o lengua extranjera o primera infancia | 1              | 0                |              |
|   | Evaluación o lengua extranjera o primeros años    | 15             | 0                |              |
|   | Evaluación o lengua extranjera o edad temprana    | 2              | 0                |              |
|   |   |                |                  |              |
| Revista Iberoamericana de evaluación educativa      | Evaluación o bilingüismo o primera infancia       | 3              | 0                | 0            |
|   | Evaluación o bilingüismo o primeros años          | 50             | 0                |              |
|   |   |                |                  |              |

|  |   |     |   |   |
|--|---|-----|---|---|
|  | Evaluación o bilingüismo o edad temprana          | 4   | 0 |   |
|  | Evaluación o lengua extranjera o primera infancia | 3   | 0 |   |
|  | Evaluación o lengua extranjera o primeros años    | 53  | 0 |   |
|  | Evaluación o lengua extranjera o edad temprana    | 4   | 0 |   |
| Perfiles educativos                            | Evaluación o bilingüismo o primera infancia       | 0   | 0 | 0 |
|  | Evaluación o bilingüismo o primeros años          | 70  | 0 |   |
|  | Evaluación o bilingüismo o edad temprana          | 5   | 0 |   |
|  | Evaluación o lengua extranjera o primera infancia | 13  | 0 |   |
|  | Evaluación o lengua extranjera o primeros años    | 70  | 0 |   |
|  | Evaluación o lengua extranjera o edad temprana    | 5   | 0 |   |
| Revista Latinoamericana de Estudios Educativos | Evaluación o bilingüismo o primera infancia       | 254 | 0 | 0 |
|  | Evaluación o bilingüismo o primeros años          | 255 | 0 |   |
|  | Evaluación o bilingüismo o edad temprana          | 253 | 0 |   |
|  | Evaluación o lengua extranjera o primera infancia | 254 | 0 |   |
|  | Evaluación o lengua extranjera o primeros años    | 255 | 0 |   |
|  | Evaluación o lengua extranjera o edad temprana    | 253 | 0 |   |

|  |   |     |   |   |
|--|---|-----|---|---|
| Revista latinoamericana de ciencias sociales, niñez y juventud | Evaluación o bilingüismo o primera infancia       | 144 | 0 | 0 |
|  | Evaluación o bilingüismo o primeros años          | 69  | 0 |   |
|  | Evaluación o bilingüismo o edad temprana          | 19  | 0 |   |
|  | Evaluación o lengua extranjera o primera infancia | 145 | 0 |   |
|  | Evaluación o lengua extranjera o primeros años    | 69  | 0 |   |
|  | Evaluación o lengua extranjera o edad temprana    | 19  | 0 |   |
| Conocimiento educativo   | Evaluación o bilingüismo o primera infancia       | 2   | 0 | 0 |
|  | Evaluación o bilingüismo o primeros años          | 14  | 0 |   |
|  | Evaluación o bilingüismo o edad temprana          | 0   | 0 |   |
|  | Evaluación o lengua extranjera o primera infancia | 2   | 0 |   |
|  | Evaluación o lengua extranjera o primeros años    | 2   | 0 |   |
|  | Evaluación o lengua extranjera o edad temprana    | 0   | 0 |   |

Source: own

**Table A9**

*Journals that received contributions in Colombia*

| Journal                 | Keywords                                    | Results | Downloads | Total |
|-------------------------|---|---------|-----------|-------|
| Voces y Silencios:      | Evaluación o bilingüismo o primera infancia | 0       | 0         | 0     |
| Revista Latinoamericana | Evaluación o bilingüismo o primeros años    | 8       | 0         |       |

|  |   |     |   |   |
|--|---|-----|---|---|
| de Educación<br>(UNIANDES)                                 | Evaluación o bilingüismo o edad temprana          | 5   | 0 |   |
|  | Evaluación o lengua extranjera o primera infancia | 9   | 0 |   |
|  | Evaluación o lengua extranjera o primeros años    | 66  | 0 |   |
|  | Evaluación o lengua extranjera o edad temprana    | 13  | 0 |   |
| Revista de<br>investigación en<br>educación                | Evaluación o bilingüismo o primera infancia       | 22  | 0 | 0 |
|  | Evaluación o bilingüismo o primeros años          | 96  | 0 |   |
|  | Evaluación o bilingüismo o edad temprana          | 5   | 0 |   |
|  | Evaluación o lengua extranjera o primera infancia | 22  | 0 |   |
|  | Evaluación o lengua extranjera o primeros años    | 96  | 0 |   |
|  | Evaluación o lengua extranjera o edad temprana    | 5   | 0 |   |
|  |   |     |   |   |
| Educación y<br>Educadores<br>(Universidad de<br>la Sabana) | Evaluación o bilingüismo o primera infancia       | 54  | 0 | 0 |
|  | Evaluación o bilingüismo o primeros años          | 96  | 0 |   |
|  | Evaluación o bilingüismo o edad temprana          | 5   | 0 |   |
|  | Evaluación o lengua extranjera o primera infancia | 22  | 0 |   |
|  | Evaluación o lengua extranjera o primeros años    | 264 | 0 |   |
|  | Evaluación o lengua extranjera o edad temprana    | 5   | 0 |   |
|  |   |     |   |   |

**Source:** own



**Table A10***Journals that received contributions in Mexico*

| <b>Journal</b>                    | <b>Keywords</b>                                   | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|-----------------------------------|---|----------------|------------------|--------------|
| Revista Mexicana de investigación | Evaluación o bilingüismo o primera infancia       | 2              | 0                | 0            |
|                                   | Evaluación o bilingüismo o primeros años          | 19             | 0                |              |
|                                   | Evaluación o bilingüismo o edad temprana          | 1              | 0                |              |
|                                   | Evaluación o lengua extranjera o primera infancia | 2              | 0                |              |
|                                   | Evaluación o lengua extranjera o primeros años    | 19             | 0                |              |
|                                   | Evaluación o lengua extranjera o edad temprana    | 1              | 0                |              |
|                                   |   |                |                  |              |
| Revistas Voces de la Educación    | Evaluación o bilingüismo o primera infancia       | 6              | 0                | 0            |
|                                   | Evaluación o bilingüismo o primeros años          | 13             | 0                |              |
|                                   | Evaluación o bilingüismo o edad temprana          | 1              | 0                |              |
|                                   | Evaluación o lengua extranjera o primera infancia | 7              | 0                |              |
|                                   | Evaluación o lengua extranjera o primeros años    | 13             | 0                |              |
|                                   | Evaluación o lengua extranjera o edad temprana    | 1              | 0                |              |
|                                   |   |                |                  |              |

**Source:** own

**Table A11***Journals that received contributions in Costa Rica*

| <b>Journal</b>                                 | <b>Keywords</b>                                      | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|--|--|----------------|------------------|--------------|
| Revista<br>educación                           | Evaluación o bilingüismo o<br>primera infancia       | 22             | 0                | 0            |
|  | Evaluación o bilingüismo o<br>primeros años          | 207            | 0                |              |
|  | Evaluación o bilingüismo o edad<br>temprana          | 7              | 0                |              |
|  | Evaluación o lengua extranjera o<br>primera infancia | 24             | 0                |              |
|  | Evaluación o lengua extranjera o<br>primeros años    | 207            | 0                |              |
|  | Evaluación o lengua extranjera o<br>edad temprana    | 32             | 0                |              |
| Actualidades<br>Investigativas en<br>Educación | Evaluación o bilingüismo o<br>primera infancia       | 131            | 0                | 0            |
|  | Evaluación o bilingüismo o<br>primeros años          | 241            | 0                |              |
|  | Evaluación o bilingüismo o edad<br>temprana          | 32             | 0                |              |
|  | Evaluación o lengua extranjera o<br>primera infancia | 55             | 0                |              |
|  | Evaluación o lengua extranjera o<br>primeros años    | 241            | 0                |              |
|  | Evaluación o lengua extranjera o<br>edad temprana    | 32             | 0                |              |

**Source:** own

**Table A12***Journals that received contributions in Argentina*

| <b>Journal</b>                       | <b>Keywords</b>                                   | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|--------------------------------------|---|----------------|------------------|--------------|
| Educación, formación e investigación | Evaluación o bilingüismo o primera infancia       | 5              | 0                | 0            |
|                                      | Evaluación o bilingüismo o primeros años          | 30             | 0                |              |
|                                      | Evaluación o bilingüismo o edad temprana          | 1              | 0                |              |
|                                      | Evaluación o lengua extranjera o primera infancia | 5              | 0                |              |
|                                      | Evaluación o lengua extranjera o primeros años    | 30             | 0                |              |
|                                      | Evaluación o lengua extranjera o edad temprana    | 1              | 0                |              |
|                                      |   |                |                  |              |

**Source:** own**Table A13***Journals that received contributions in Chile*

| <b>Journal</b>                    | <b>Keywords</b>                                   | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|-----------------------------------|---|----------------|------------------|--------------|
| Infancia, educación y aprendizaje | Evaluación o bilingüismo o primera infancia       | 31             | 0                | 0            |
|                                   | Evaluación o bilingüismo o primeros años          | 29             | 0                |              |
|                                   | Evaluación o bilingüismo o edad temprana          | 2              | 0                |              |
|                                   | Evaluación o lengua extranjera o primera infancia | 31             | 0                |              |
|                                   | Evaluación o lengua extranjera o primeros años    | 29             | 0                |              |
|                                   | Evaluación o lengua extranjera o edad temprana    | 2              | 0                |              |
|                                   |   |                |                  |              |

|  |  |    |   |   |
|--|--|----|---|---|
| Perspectiva<br>educacional                               | Evaluación o bilingüismo o<br>primera infancia       | 4  | 0 | 0 |
|  | Evaluación o bilingüismo o<br>primeros años          | 17 | 0 |   |
|  | Evaluación o bilingüismo o edad<br>temprana          | 2  | 0 |   |
|  | Evaluación o lengua extranjera o<br>primera infancia | 4  | 0 |   |
|  | Evaluación o lengua extranjera o<br>primeros años    | 17 | 0 |   |
|  | Evaluación o lengua extranjera o<br>edad temprana    | 2  | 0 |   |
|  |  |    |   |   |
|  |  |    |   |   |
| Revista de<br>Estudios y<br>Experiencias en<br>Educación | Evaluación o bilingüismo o<br>primera infancia       | 6  | 0 | 0 |
|  | Evaluación o bilingüismo o<br>primeros años          | 63 | 0 |   |
|  | Evaluación o bilingüismo o edad<br>temprana          | 2  | 0 |   |
|  | Evaluación o lengua extranjera o<br>primera infancia | 6  | 0 |   |
|  | Evaluación o lengua extranjera o<br>primeros años    | 63 | 0 |   |
|  | Evaluación o lengua extranjera o<br>edad temprana    | 2  | 0 |   |
|  |  |    |   |   |

Source: own

**Table A14**

*Journals that received contributions in Peru*

| Journal                     | Keywords                                       | Results | Downloads | Total |
|-----------------------------|--|---------|-----------|-------|
| Revista innova<br>educación | Evaluación o bilingüismo o<br>primera infancia | 8       | 0         | 0     |
|                             | Evaluación o bilingüismo o<br>primeros años    | 37      | 0         |       |

|           |   |     |   |   |
|-----------|---|-----|---|---|
|           | Evaluación o bilingüismo o edad temprana          | 1   | 0 |   |
|           | Evaluación o lengua extranjera o primera infancia | 9   | 0 |   |
|           | Evaluación o lengua extranjera o primeros años    | 37  | 0 |   |
|           | Evaluación o lengua extranjera o edad temprana    | 1   | 0 |   |
| Educación | Evaluación o bilingüismo o primera infancia       | 79  | 0 | 0 |
|           | Evaluación o bilingüismo o primeros años          | 349 | 0 |   |
|           | Evaluación o bilingüismo o edad temprana          | 34  | 0 |   |
|           | Evaluación o lengua extranjera o primera infancia | 82  | 0 |   |
|           | Evaluación o lengua extranjera o primeros años    | 349 | 0 |   |
|           | Evaluación o lengua extranjera o edad temprana    | 34  | 0 |   |
|           |   |     |   |   |

**Source:** own

**Table A15**

*Journals that received contributions in Venezuela*

| <b>Journal</b>     | <b>Keywords</b>                                   | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|--------------------|---|----------------|------------------|--------------|
| Sipnosis educativa | Evaluación o bilingüismo o primera infancia       | 5              | 0                | 0            |
|                    | Evaluación o bilingüismo o primeros años          | 2              | 0                |              |
|                    | Evaluación o bilingüismo o edad temprana          | 2              | 0                |              |
|                    | Evaluación o lengua extranjera o primera infancia | 5              | 0                |              |

|  |    |   |
|--|----|---|
| Evaluación o lengua extranjera o primeros años | 22 | 0 |
| Evaluación o lengua extranjera o edad temprana | 2  | 0 |

**Source:** own

**Table A16**

*Journals that received contributions in Cuba*

| <b>Journal</b>       | <b>Keywords</b>                                   | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|----------------------|---|----------------|------------------|--------------|
| Educación y sociedad | Evaluación o bilingüismo o primera infancia       | 22             | 0                | 1            |
|                      | Evaluación o bilingüismo o primeros años          | 107            | 0                |              |
|                      | Evaluación o bilingüismo o edad temprana          | 18             | 0                |              |
|                      | Evaluación o lengua extranjera o primera infancia | 22             | 0                |              |
|                      | Evaluación o lengua extranjera o primeros años    | 107            | 1                |              |
|                      | Evaluación o lengua extranjera o edad temprana    | 18             | 0                |              |
|                      | Evaluación o lengua extranjera o edad temprana    | 18             | 0                |              |
|                      |   |                |                  |              |

**Source:** own

**Table A17**

*Journals that received contributions in Ecuador*

| <b>Journal</b>                  | <b>Keywords</b>                             | <b>Results</b> | <b>Downloads</b> | <b>Total</b> |
|---------------------------------|---|----------------|------------------|--------------|
| Alteridad. Revista de educación | Evaluación o bilingüismo o primera infancia | 262            | 0                | 0            |
|                                 | Evaluación o bilingüismo o primeros años    | 274            | 0                |              |

|   |     |   |
|---|-----|---|
| Evaluación o bilingüismo o edad temprana          | 272 | 0 |
| Evaluación o lengua extranjera o primera infancia | 271 | 0 |
| Evaluación o lengua extranjera o primeros años    | 273 | 0 |
| Evaluación o lengua extranjera o edad temprana    | 271 | 0 |

**Source:** own

**Table A18**

*Journals that received contributions in Spain*

| Journal   | Keywords  | Results | Downloads | Total |
|---|---|---------|-----------|-------|
| Aula: Revista de pedagogía de la Universidad de Salamanca | Evaluación o bilingüismo o primera infancia       | 12      | 0         | 0     |
|   | Evaluación o bilingüismo o primeros años          | 61      | 0         |       |
|   | Evaluación o bilingüismo o edad temprana          | 4       | 0         |       |
|   | Evaluación o lengua extranjera o primera infancia | 12      | 0         |       |
|   | Evaluación o lengua extranjera o primeros años    | 61      | 0         |       |
|   | Evaluación o lengua extranjera o edad temprana    | 4       | 0         |       |

**Source:** own

**Table A19**

*Journals that received contributions in Uruguay*

| Journal | Keywords                                    | Results | Downloads | Total |
|---------|---|---------|-----------|-------|
|         | Evaluación o bilingüismo o primera infancia | 4       | 0         | 0     |

|                                      |   |    |   |
|--------------------------------------|---|----|---|
| Cuadernos de Investigación Educativa | Evaluación o bilingüismo o primeros años          | 43 | 0 |
|                                      | Evaluación o bilingüismo o edad temprana          | 4  | 0 |
|                                      | Evaluación o lengua extranjera o primera infancia | 5  | 0 |
|                                      | Evaluación o lengua extranjera o primeros años    | 43 | 0 |
|                                      | Evaluación o lengua extranjera o edad temprana    | 4  | 0 |
|                                      | Evaluación o lengua extranjera o edad temprana    | 4  | 0 |

**Source:** own

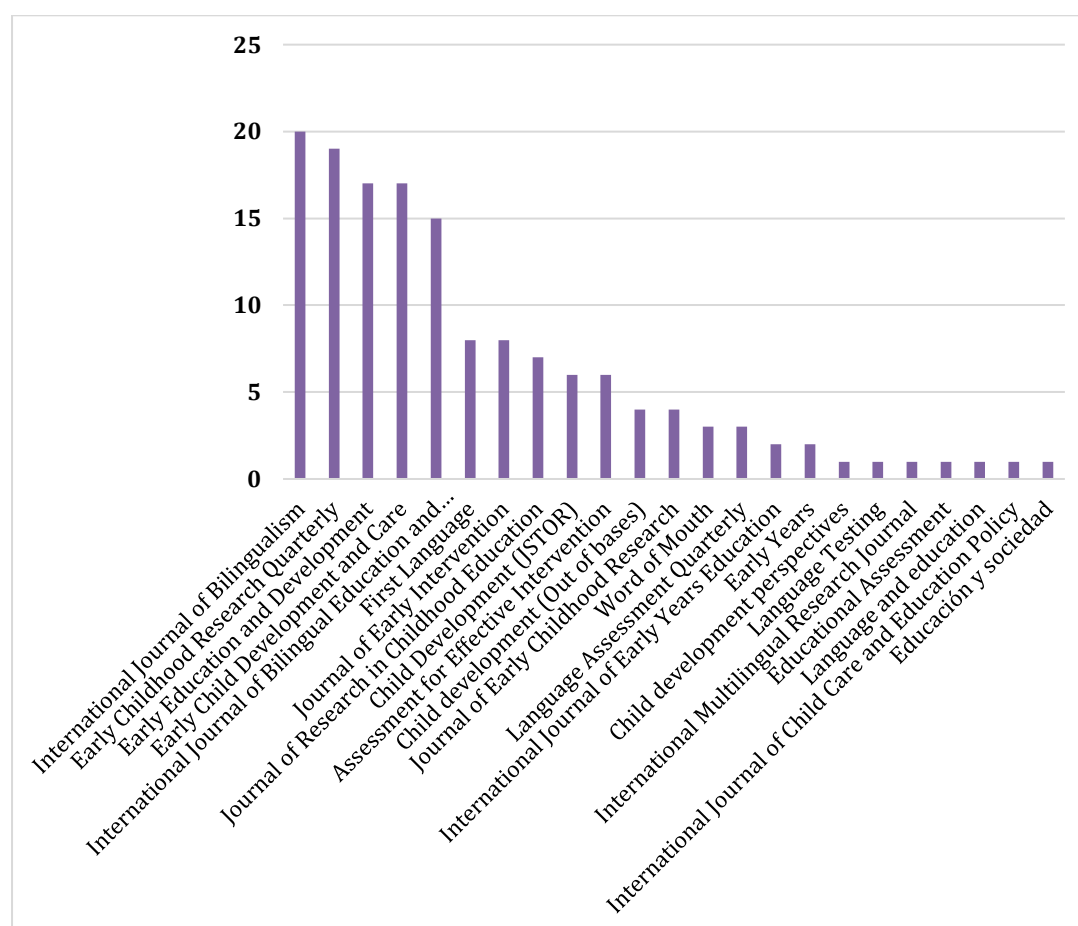
**Table A20**

*Journals that received contributions in Panama*

| Journal                      | Keywords  | Results | Downloads | Total |
|------------------------------|---|---------|-----------|-------|
| Acción y reflexión educativa | Evaluación o bilingüismo o primera infancia       | 1       | 0         | 0     |
|                              | Evaluación o bilingüismo o primeros años          | 13      | 0         |       |
|                              | Evaluación o bilingüismo o edad temprana          | 0       | 0         |       |
|                              | Evaluación o lengua extranjera o primera infancia | 1       | 0         |       |
|                              | Evaluación o lengua extranjera o primeros años    | 13      | 0         |       |
|                              | Evaluación o lengua extranjera o edad temprana    | 0       | 0         |       |

**Source:** own



**Figure A1.***Articles downloaded in the first stage***Source:** own

*Note.* The chart shows how many articles were downloaded per journal during the first filter.

A total of 148 articles were downloaded in the search for assessment instruments that fitted the current review. Nonetheless, that does not mean that all those articles were included in the review as some other filters were performed afterwards. However, it depicts a proper exemplification of the impact of each journal, by showing which are more useful when retrieving articles related to the assessment of bilingualism in the early infancy. The journals that did not contribute with any article were not included in this chart.